SONY

VIDEOCASSETTE RECORDER

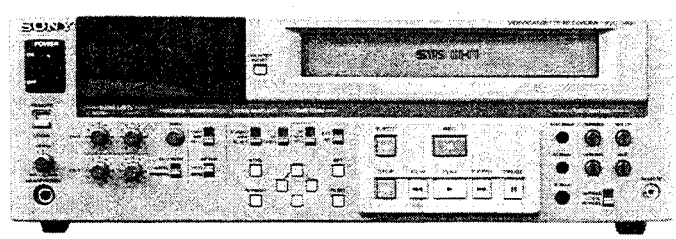
SVO-5800

VIDEOCASSETTE PLAYER

SVP-5600

SERVICE MANUAL

Vol.1 1st Edition



S-VHS

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

Check the metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA. Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)

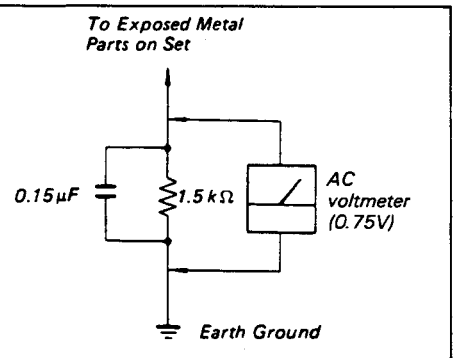


Fig. A. Using an AC voltmeter to check AC leakage.

Introducing this manual

This manual is the Service Manual Vol.1 of the videocassette recorder SVO-5800 and videocassette player SVP-5600.
This manual contains the maintenance information of this equipment, and servicing information necessary for parts replacement and adjustments.

Contents

The sections covered in the manual are summarized below to give you a general understanding of the manual.

Section 1 OPERATING INSTRUCTION
Describes the contents of the operating Instructions related to the operations of this equipment.

Section 2 SERVICE OVERVIEW
Describes how to replace of the parts, the locations of the parts, switch setting, error code and maintenance menu on services.

Section 3 PERIODIC INSPECTION AND MAINTENANCE
Describes the periodic inspection and cleaning procedure.

Section 4 REPLACEMENT OF MECHANICAL PARTS
Describes how to replace the parts and how to adjust them after replacement.

Section 5 TORQUE AND TAPE TENSION ALIGNMENT
Describes the adjustment procedures of torque and tape tension systems.

Section 6 TAPE PATH ALIGNMENT
Describes the adjustment procedures of tape path system.

Section 7 ELECTRICAL ALIGNMENT OVERVIEW
Describes the general information for electrical adjustments.

Section 8 SYSTEM CONTROL ALIGNMENT
Describes the electrical adjustments of system control.

Section 9 SERVO ALIGNMENT
Describes the electrical adjustments of servo system.

Section 10 AUDIO ALIGNMENT
Describes the electrical adjustments of audio system.

Section 11 VIDEO ALIGNMENT
Describes the electrical adjustments of video system.

Section 12 ELECTRICAL ALIGNMENT AFTER REPLACEMENT BOARDS
Describes the electrical adjustments after replacement boards.

Operating Instructions and Service Manuals

In addition to this Service Manual Vol. 1, the following Operating Instructions and Service manuals are provided.

•Operating Instructions (Supplied with equipment)
Part No. 3-759-424-21
Describes how to operate this equipment.

•Service Manual Vol.2 (Not supplied with equipment)
Part No. 9-977-596-21
Describes the block diagrams, board layouts, schematic diagrams, semiconductor pin assingments and parts lists.

•SVBK-170 Service Manual (Not supplied with equipment)
Part No. 9-977-593-01
Describes the servicing information of the component output board SVBK-170 (option board).

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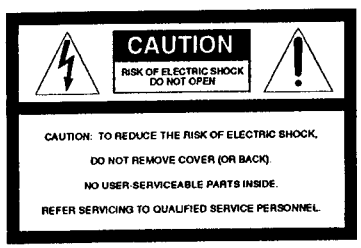
Owner's Record

The model and serial numbers are located at the rear. Record these numbers in the spaces provided below. Refer to them whenever you call upon your Sony dealer regarding this product.

Model No. _____ Serial No. _____

WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.


CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Caution
Television programs, films, video tapes and other materials may be copyrighted. Unauthorized recording of such material may be contrary to the provisions of the copyright laws.

For the customers in USA

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

The shielded interface cable recommended in this manual must be used with this equipment in order to comply with the limits for a digital device pursuant to Subpart B of Part 15 of FCC Rules.

For the customers in Canada
This apparatus complies with the Class A limits for radio noise emissions set out in Radio Interference Regulations.

For the customers in the United Kingdom

WARNING
THIS APPARATUS MUST BE EARTHED

IMPORTANT
The wires in this mains lead are coloured in accordance with the following code:

Green-and-yellow:	Earth
Blue:	Neutral
Brown:	Live

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug proceed as follows:
The wire which is coloured green-and-yellow must be connected to the terminal in the plug which is marked by the letter E or by the safety earth symbol ⏚ or coloured green or green-and-yellow.
The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.
The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

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SECTION 1
OPERATING INSTRUCTION

This section is extracted from operation manual.

About This Manual

This manual explains how to use the SVO-5800/5800P Videocassette Recorder and SVP-5600/5600P Videocassette Player. The SVO-5800 and SVP-5600 are the models using the NTSC color system, and the SVO-5800P and SVP-5600P using the PAL color system. When the functions differ for each model, they are distinguished by such descriptions as "SVO-5800/5800P only."
A Menu Card is also included with this manual. Please use it as a quick reference when changing the settings of the unit through the menu system.
This manual does not include operations using the editing control unit. Please read the manual attached to the editing control unit for these operations.

Features

The SVO-5800/5800P and SVP-5600/5600P are high-quality videocassette recorder/players employing the S-VHS format. By connecting an editing control unit and operating from it, high-quality and high-precision editing is possible.

High Picture Quality

Built-in CPI (Chroma Process Improvement) circuit

The built-in CPI circuit provides a high chroma resolution and improves color reproduction. This allows you to obtain a high-quality picture with clear contour.

YX filter

The SVO-5800/5800P and SVP-5600/5600P use a YX filter to reduce cross-color (where one color mixes with another) and beat (diagonal stripes).

Built-in Time Base Corrector (TBC)

The built-in time base corrector allows you to obtain a stable playback picture with no horizontal jitter or color fluctuation.

High Sound Quality

Hi-fi audio recording (four-channel audio signal recording) (SVO-5800/5800P only)

The SVO-5800/5800P incorporates a hi-fi (AFM: Audio Frequency Modulated) stereo audio recording system to provide high-quality sound recording. The recording and playback of two channels of both normal audio and hi-fi audio, giving a total of four channels, is possible. Normal audio or hi-fi audio can be selected for monitor during playback.

Audio noise reduction

The normal audio tracks of channels 1 and 2 use Dolby* NR B-type noise reduction, which reduces the tape noise.

* Dolby NR
Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
"DOLBY" and the double-D symbol a are trademarks of Dolby Laboratories Licensing Corporation.

Full Range of Functions

Built-in time code generator (SVO-5800/5800P only) and reader

The built-in time code generator and reader allow the unit to record (SVO-5800/5800P only) and read time codes (LTC [1], VITC [2]) or user bits simultaneously with the video and audio signals.

Remote control function

This unit can be operated from a remote control unit through the RS-422A serial interface.
Jog and shuttle operations can also be remote controlled by the SVRM-100 remote control unit (not supplied).

Superimposed text output

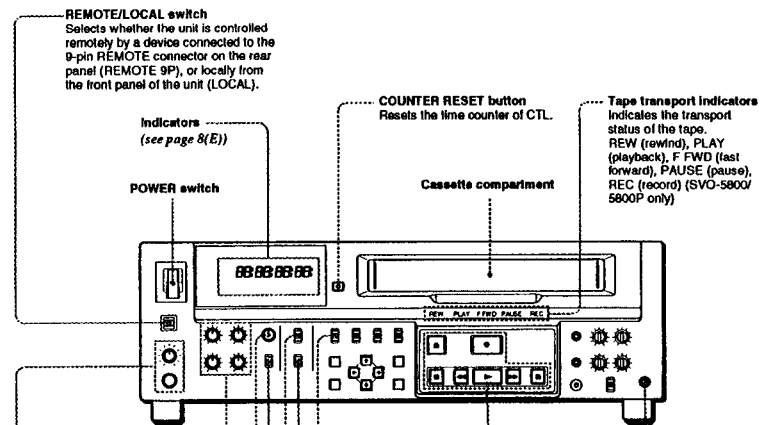
Using menu operations, various information such as time data, tape speed and system settings can be superimposed on video signals and output from the MONITOR VIDEO connector.

1) **LTC (Longitudinal Time Code):** Time code which is recorded on the normal audio channel 2 (longitudinal track) of the tape.
2) **VITC (Vertical Interval Time Code):** Time code which is recorded on the vertical interval of the tape.

Identification of Parts and Controls

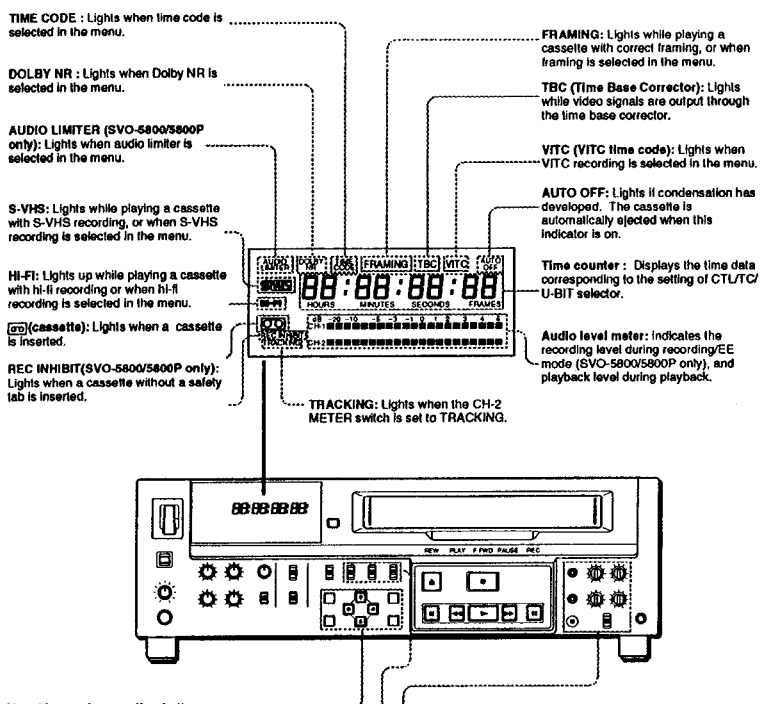
Front Panel

The illustration below shows the SVO-5800/5800P.


REMOTE/LOCAL switch
Selects whether the unit is controlled remotely by a device connected to the 9-pin REMOTE connector on the rear panel (REMOTE 9P), or locally from the front panel of the unit (LOCAL).
Indicators
(see page 8(E))
POWER switch
COUNTER RESET button
Resets the time counter of CTL.
Cassette compartment
Tape transport indicators
Indicates the transport status of the tape.
REW (rewind), PLAY (playback), F FWD (fast forward), PAUSE (pause), REC (record) (SVO-5800/5800P only)
HEADPHONES connector (stereo phone jack) and LEVEL (headphones level) control
AUDIO LEVEL control (SVO-5800/5800P only)
The NORM control adjusts the audio level in normal audio recording, and the HI-FI control, in hi-fi recording (AFM recording), for each channel.
TRACKING control
Use this control to adjust tracking when playing back a tape recorded with another video recorder. Set it to FIXED in ordinary use.
CH-2 METER switch
Selects the function of the CH-2 indicator of the audio level meter. It can be used as an audio level meter (AUDIO) or as a tracking meter (TRACKING).
VIDEO IN SELECT switch (SVO-5800/5800P only)
Selects the video signals to be input to the unit. When it is set to the BLACK position, the built-in black burst signal is selected, which is convenient for making a tape to be edited.
METER switch
Selects the audio signals to be displayed on the audio level meter (normal audio or HI-FI).
REMOTE connector (minijack)
Connects the SVRM-100 remote control unit (not supplied), etc.
Tape transport control buttons
EJECT (cassette eject) button
REC (record) button (SVO-5800/5800P only)
Press the PLAY button while pressing this button to start recording.
STOP button
REW (rewind) button
PLAY (playback) button
F FWD (fast forward) button
PAUSE button
MONITOR OUT CH-1/MIX/CH-2 selector
Selects the audio signals to be output through the HEADPHONES connector or MONITOR AUDIO connector.
When it is set to the MIX position, stereo sound is output through the HEADPHONES connector, and mixed sound of channel 1 and channel 2 through the MONITOR AUDIO connector.

Identification of Parts and Controls

Indicators


TIME CODE : Lights when time code is selected in the menu.
DOLBY NR : Lights when Dolby NR is selected in the menu.
AUDIO LIMITER (SVO-5800/5800P only): Lights when audio limiter is selected in the menu.
S-VHS: Lights while playing a cassette with S-VHS recording, or when S-VHS recording is selected in the menu.
HI-FI: Lights up while playing a cassette with hi-fi recording or when hi-fi recording is selected in the menu.
(cassette): Lights when a cassette is inserted.
REC INHIBIT(SVO-5800/5800P only): Lights when a cassette without a safety tab is inserted.
FRAMING: Lights while playing a cassette with correct framing, or when framing is selected in the menu.
TBC (Time Base Corrector): Lights while video signals are output through the time base corrector.
VITC (VITC time code): Lights when VITC recording is selected in the menu.
AUTO OFF: Lights if condensation has developed. The cassette is automatically ejected when this indicator is on.
Time counter : Displays the time data corresponding to the setting of CTL/TC/U-BIT selector.
Audio level meter: Indicates the recording level during recording/EE mode (SVO-5800/5800P only), and playback level during playback.
TRACKING: Lights when the CH-2 METER switch is set to TRACKING.
HOURS
MINUTES
SECONDS
FRAMES

Menu/time code operation buttons
MENU button
TC PRESET (time code preset) button
↑ ↓ ← → (arrow direction) buttons
RESET(NO) button
SET(YES) button

For details on how to use the menu/time code operation buttons, see the section "Changing the Settings of Set-up Menu" (page 51(E)).

TIME CODE control block
CTL/TC/U-BIT (time counter display) selector
LTC/AUTO/VITC (TIME CODE) selector
EXT/INT (time code generator) switch (SVO-5800/5800P only)

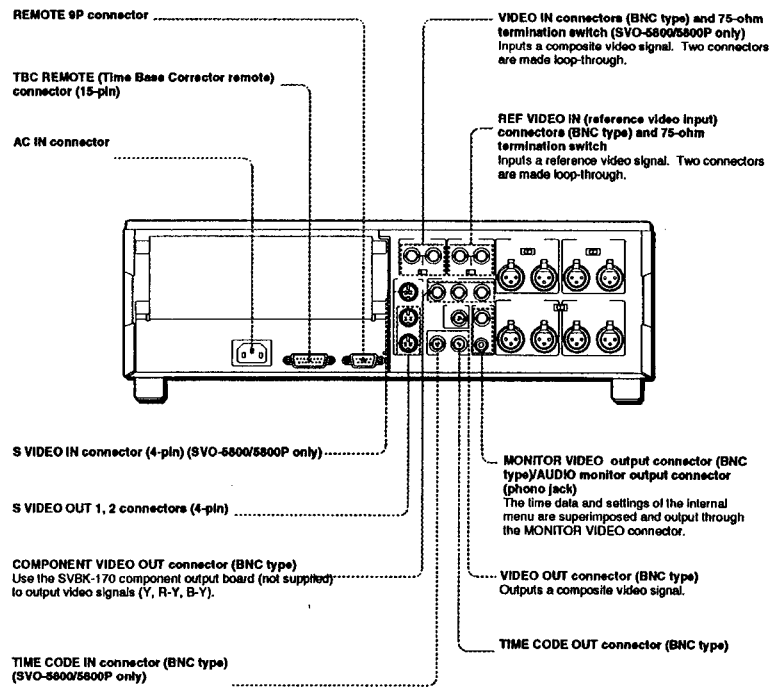
For details on how to use the time code control block, see the section "Time Data" (page 36(E)).

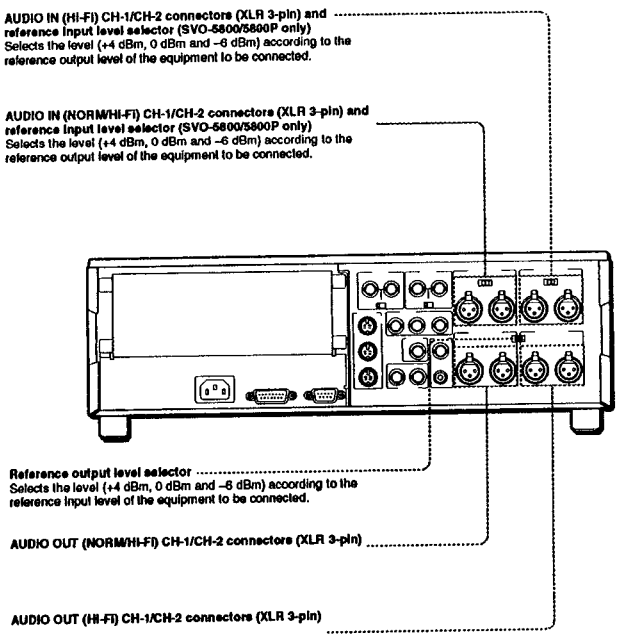
TBC CONTROL (Time Base Corrector control) block
SYNC PHASE (system sync phase) screw
SC PHASE (sub-carrier phase) screw
Y/C DELAY (Y/C delay adjustment) screw
VIDEO (video level adjustment) control
CHROMA (chroma adjustment) control
SET UP (set up adjustment) control
HUE (hue adjustment) control
BYPASS/LOCAL/REMOTE (time base corrector) selector
Selects the operation mode of the time base corrector.
BYPASS: Outputs a signal which did not go through the time base corrector.
LOCAL: Outputs a signal which went through the time base corrector. Adjust with the controls and screws on the unit.
REMOTE: Outputs a signal which went through the time base corrector. Adjust with an external remote control unit.

For details on how to use the TBC CONTROL block, see the section "Adjustments for Precise Editing — Phase Adjustments" (page 33(E)).

Rear Panel

The illustration below shows the SVO-5800/5800P.


REMOTE 9P connector
TBC REMOTE (Time Base Corrector remote) connector (15-pin)
AC IN connector
S VIDEO IN connector (4-pin) (SVO-5800/5800P only)
S VIDEO OUT 1, 2 connectors (4-pin)
COMPONENT VIDEO OUT connector (BNC type)
Use the SVBK-170 component output board (not supplied) to output video signals (Y, R-Y, B-Y).
TIME CODE IN connector (BNC type) (SVO-5800/5800P only)
VIDEO IN connectors (BNC type) and 75-ohm termination switch (SVO-5800/5800P only)
Inputs a composite video signal. Two connectors are made loop-through.
REF VIDEO IN (reference video input) connectors (BNC type) and 75-ohm termination switch
Inputs a reference video signal. Two connectors are made loop-through.
MONITOR VIDEO output connector (BNC type)/AUDIO monitor output connector (phono jack)
The time data and settings of the internal menu are superimposed and output through the MONITOR VIDEO connector.
VIDEO OUT connector (BNC type)
Outputs a composite video signal.
TIME CODE OUT connector (BNC type)


AUDIO IN (HI-FI) CH-1/CH-2 connectors (XLR 3-pin) and reference input level selector (SVO-5800/5800P only)
Selects the level (+4 dBm, 0 dBm and –6 dBm) according to the reference output level of the equipment to be connected.
AUDIO IN (NORM/HI-FI) CH-1/CH-2 connectors (XLR 3-pin) and reference input level selector (SVO-5800/5800P only)
Selects the level (+4 dBm, 0 dBm and –6 dBm) according to the reference output level of the equipment to be connected.
Reference output level selector
Selects the level (+4 dBm, 0 dBm and –6 dBm) according to the reference input level of the equipment to be connected.
AUDIO OUT (NORM/HI-FI) CH-1/CH-2 connectors (XLR 3-pin)
AUDIO OUT (HI-FI) CH-1/CH-2 connectors (XLR 3-pin)

Note

There is a 600-ohm termination switch for the AUDIO IN connectors (NORM/Hi-Fi, Hi-Fi) on the circuitboard inside the unit. The factory default setting of this switch is 600-ohm termination. Contact your Sony dealer for the setting.

Precautions

Safety Precautions

Power supply

- Connect the unit to a power supply of the correct rating.
- Do not drop or place heavy objects on the power cord. If the power cord is damaged, turn off the power immediately. It is dangerous to use the unit with a damaged power cord.
- Disconnect the power cord from the AC outlet by grasping the plug, not by pulling the cord.

Do not open the cabinet

Opening the cabinet may damage precision components or result in electric shock.

Keep foreign objects out of the cabinet

Dropping flammable or metal objects into the cabinet, or spilling liquids near the unit can result in serious accidents.

In case of trouble

If you notice an unusual sound, smell or smoke, turn off the power immediately, disconnect the power supply and contact your Sony dealer.

Handling Precautions

Location

Do not store or use the unit under any of the following conditions:

- In excessive heat or cold (permissible temperature range: 5°C to 40°C (41°F to 104°F))
- In direct sunlight or near heaters. Remember that the temperature inside a locked automobile in summer can rise as high as 50°C (122°F).
- In damp or dusty locations
- In locations subject to vibration
- Near strong magnetic fields
- Near television or equipment generating strong radio frequency energy

Orientation

This unit is designed to be operated horizontally. Never operate the unit vertically or incline it more than 20 degrees.

Precautions

Protect the unit from impact

Do not drop the unit or subject it to severe shocks.

Keep the unit well ventilated

To prevent the temperature from rising inside the unit, keep the unit uncovered and well ventilated while it is operating.

Maintenance

Clean the cabinet and panels by wiping with a soft, dry cloth. For stubborn stains, moisten the cloth with a small amount of neutral solvent, and finish by wiping with a dry cloth. Do not use alcohol, benzine, thinners or volatile liquids, as these may discolor or damage the cabinet surface.

Transporting

- Remove any cassette from the cassette compartment.
- Protect the unit from impact by transporting it in its original carton or a protective case.

Handling Cassettes

Compatible Cassettes

Use S-VHS or VHS cassettes with the unit. The type numbers of cassettes indicate recording/playback times (minutes).

Types of cassettes	Type number
S-VHS cassettes	MQST-30/60/120 (for SVO-5800/SVP-5600) MQSE-30/60/120 (for SVO-5800P/SVP-5600P)
VHS cassettes (high grade tape)	T-30VHG/60VHG/100VHG/120VHG/140VHG/160VHG (for SVO-5800/SVP-5600) E-30PM/60PM/120PM (for SVO-5800P/SVP-5600P)
VHS cassettes (standard tape)	T-30V/60V/120V/140V/160V

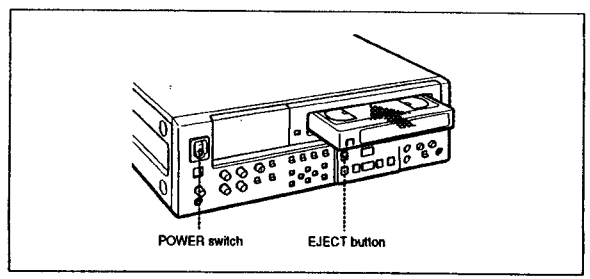
Cassette compatibility

- When you use a VHS cassette, you cannot record a video signal in S-VHS format. In this case, the unit records and plays back in VHS format on the VHS cassette.
- When you use an S-VHS cassette, you can record a video signal either in S-VHS format or VHS format. The unit plays back in the format in which the recording was made. This unit can select the recording format in the menu.

Inserting and Ejecting a Cassette

Note

Insert the cassette while the power of the unit is turned on.



Inserting and ejecting a cassette

(continued)

Handling Cassettes

Inserting a cassette

1 Set the POWER switch to ON.

2 Insert the cassette with its label side up.
The cassette is automatically pulled into the operating position.

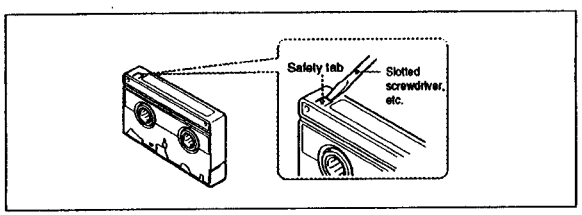
Ejecting a cassette

1 Make sure that the POWER switch is set to ON.

2 Press the EJECT button.

Preventing Accidental Erasure

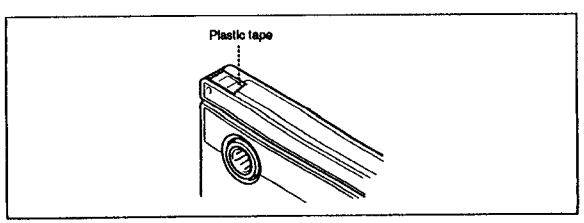
When re-recording on a previously recorded tape, previous recording is automatically erased. To avoid unintentional erasure of recorded signals, break off the safety tab on the cassette. With the tab removed, recording is inhibited.



Preventing accidental erasure

To cancel recording inhibition

Cover the slot left by the safety tab with plastic tape. Placing two layers of tape makes it more secure.

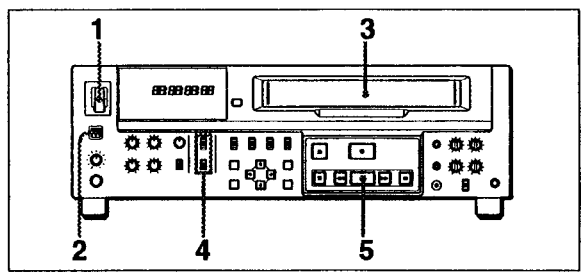


To cancel recording inhibition

Playback

This section describes the basic operating procedures for playback, using the front panel of the unit.

Basic Playback Operations



Basic playback operations

1 Set the POWER switch to ON.

2 Set the REMOTE/LOCAL switch to LOCAL.
It enables you to operate the unit using the controls on the front panel.

3 Insert a cassette into the cassette compartment.

4 Use the MONITOR OUT selectors (METER switch and CH-1/MIX/CH-2 selector) to select the sound to be monitored during playback.
The selected sound is output from the HEADPHONES connector and the MONITOR AUDIO connector on the rear panel.
When the selector is set to the MIX position, stereo sound is output through the HEADPHONES connector, and the mixed sound of channel 1 and channel 2 through the MONITOR AUDIO connector.

Sound to be monitored	METER switch setting	Channel to be monitored	CH-1/MIX/CH-2 selector setting
Hi-fi recording sound	Hi-Fi	Channel 1	CH-1
		Channel 1 and channel 2	MIX
		Channel 2	CH-2
Normal recording sound	NORM	Channel 1	CH-1
		Channel 1 and channel 2	MIX
		Channel 2	CH-2

(continued)

Playback

5 Press the PLAY button.
The unit starts playing back.
At tape end, the unit automatically rewinds the tape and stops.

To stop the tape momentarily	Press the PAUSE button.
To stop playback	Press the STOP button.
To rewind the tape	Press the REW button.
To fast forward the tape	Press the F FWD button.
To rewind the tape while watching the picture	Keep pressing the REW button during playback.
To fast forward the tape while watching the picture	Keep pressing the F FWD button during playback.

Notes on audio output

- When the NORMAL CH-2 item of the AUDIO CONTROL menu is set to TIME CODE, the sound recorded in channel 2 of the normal audio track cannot be output or monitored even if you play back a tape on which the sound is recorded in channel 2 .
- When the NORMAL CH-2 item of the AUDIO CONTROL menu is set to AUDIO, time code noise is output through the audio output and monitor output of channel 2 of the normal audio track if you play back a tape on which time code (LTC) is recorded in channel 2. In this case, the time code cannot be used.

For the AUDIO CONTROL menu, see page 49(E).

Settings Using the Menu

You can set the following settings relative to playback using the menu. For details, see the section "Changing the Settings of the Unit – Set-up Menu" in "Advanced Operation" *(page 43(E))*.

When playing back a tape recorded using the Dolby NR system

Set the DOLBY NR item in the AUDIO CONTROL menu to ON *(page 49(E))*. Set it to OFF when playing back a tape recorded without using the Dolby NR system.

Setting the playback pause time

If the playback pause is held for 5 minutes, the pause mode is cancelled, and the tape is step-fed for about 1 second at 1/5 speed to protect the tape and video heads. You can change the pause time and tape operation after pause cancel with the STILL TIMER item and PROTECT MODE item of the TAPE PROTECTION menu *(page 49(E))*.

If Snow or Streaks Appear on the Picture — Tracking Adjustment

If the unit is used to play back a signal recorded with another VTR, noise, snow or streaks may appear because of a tracking error. In this case, make the following adjustments.

1 Set the CH-2 METER switch to TRACKING.

2 Slowly turn the TRACKING control until the maximum level is obtained on the TRACKING CH-2 meter.

Notes

- After playing back the tape, reset the TRACKING control to FIXED. It resumes standard tracking.
- Incorrect tracking may cause noise and vertical fluctuation in the pause mode. In this case, play back the tape and adjust tracking.

Superimposing the Text on the Monitor Screen

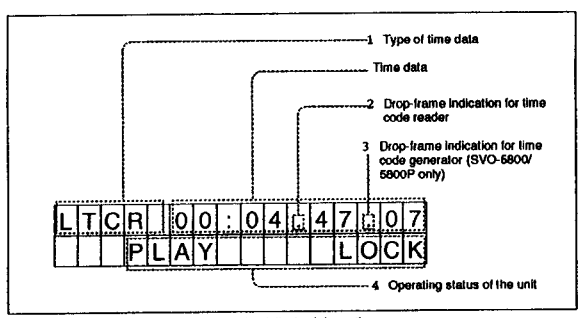
You can superimpose the time data, operating status of the unit, etc. on the screen of the video monitor connected to the MONITOR VIDEO connector on the rear panel.

Superimposed text information

On/off of superimpose, information displayed, and character type and position can be selected by using the DISPLAY CONTROL menu. The factory default settings are as follows:

Superimpose: ON
Information displayed: Time data selected by the CTL/TC/U-BIT (time counter display) selector, and the operating status of the unit
Character type: White characters on a black background
Character position: Bottom center of the screen

For details of the settings, see the DISPLAY CONTROL menu (page 45(E)).


1 Type of time data
Time data
2 Drop-frame indication for time code reader
3 Drop-frame indication for time code generator (SVO-5800/5800P only)
LTCR 00:04:47:07
PLAY LOCK
4 Operating status of the unit

Example of display information

1 Type of time data

This indicates the type of time data as follows.

Indication	Meaning
CTL	CTL counter data
LTCR/VTCR	Time code reader data
LUBR/VUBR	User bit data of time code reader
TCG	Time code data from time code generator (SVO-5800/5800P only)
UBG	User bit data from time code generator (SVO-5800/5800P only)
LT•R VT•R	Time code data from time code reader Interpolated by the time code reader to make up for the time code data not correctly read from the tape.
LU•R VU•R	User bit data from time code reader The last data is retained by the time code reader, as the new data has not been read correctly from the tape.

2 Drop-frame indication for time code reader

" . " : Drop-frame mode
" : " : Non-drop-frame mode

3 Drop-frame indication for time code generator (SVO-5800/5800P only)

" . " : Drop-frame mode
" : " : Non-drop-frame mode

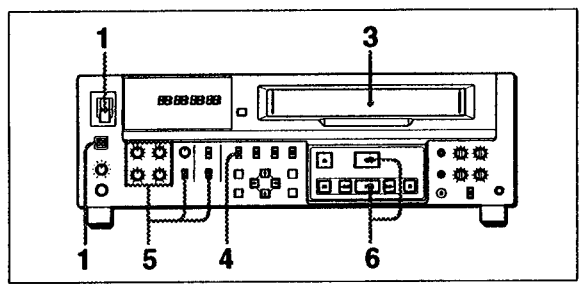
4 Operating status of the unit

Indication	Operating status
THREADING	Cassette is inserted, and tape is being threaded.
UNTHREADING	Tape is being unthreaded to eject cassette.
CASSETTE OUT	No cassette is inserted.
T. RELEASE	Tape tension is released.
STOP	Tape is stopped.
F. FWD	Fast forward
REW	Rewind
PREROLL	Preroll
PLAY	Play (servo not locked)
PLAY LOCK	Play (servo locked)
PLAY-PAUSE	Playback pause
REC	Recording (servo not locked)
REC LOCK	Recording (servo locked)
REC-PAUSE	Recording pause
EDIT	Edit mode (servo not locked)
EDIT LOCK	Edit mode (servo locked)
JOG STILL	Still picture in jog mode
JOG FWD	Jog mode in forward direction (▶ indicator lights)
JOG REV	Job mode in reverse direction (◀ indicator lights)
SHUTTLE (speed)	Shuttle mode (playback speed)
PAUSE	Shuttle mode playback pause

Recording (SVO-5800/5800P only)

This section describes the basic recording operations using the front panel of the unit.
Please note that there is a premise that a system is set up and the corresponding audio/video recording method is set for the system. For details of set-up and settings, see the section "Advanced Operation."

Basic Recording Operations



Basic recording operations

1 Set the POWER switch to ON.

2 Set the REMOTE/LOCAL switch to LOCAL.
It enables you to operate the unit using the controls on the front panel.

3 Insert a cassette.
Make sure that the safety tab on the cassette is not broken.

4 Use the VIDEO IN SELECT switch to select the connector to which a video signal is connected.
S VIDEO: When connected to the S VIDEO IN connector.
LINE: When connected to the VIDEO IN connector (BNC type).
BLACK: When recording black burst signal (to make a tape for editing).

5 Adjust the recording level of the audio signal.

1) Input the audio signal.
Set the recording method and input connector of the audio signal in the AUDIO CONTROL menu. See "Selection and settings for the audio input /output" (page 27(E)).

2) Set the CH-2 METER switch to AUDIO.

3) Indicate the audio signal to be adjusted with the MONITOR OUT METER switch on the audio level meter. Adjust it with the AUDIO LEVEL control so that the maximum signal level does not exceed "5" on the indication on the meter.

Audio signal to be adjusted	Setting of MONITOR OUT METER switch	AUDIO LEVEL controls to be used
Hi-fi recording	Hi-Fi	Hi-Fi CH-1 (for channel 1)
		Hi-Fi CH-2 (for channel 2)
Normal recording	NORM	NORM CH-1 (for channel 1)
		NORM CH-2 (for channel 2)

For monitoring the sound during adjustment, see the section below "Monitoring the Sound Being Recorded."

Note
When adjusting an audio signal for normal recording, set the LIMITER in the AUDIO CONTROL menu to OFF *(page 49(E))*.

6 While pressing the REC button, press the PLAY button.
Recording starts.

To stop recording momentarily	Press the PAUSE button. To resume recording, press the PAUSE button again. You can continue recording smoothly without picture disturbance.
To stop recording	Press the STOP button.

Monitoring the Sound Being Recorded

During recording or audio signal level adjustment, the sound to be monitored can be selected with the MONITOR OUT selectors (METER switch and CH-1/MIX/CH-2 selector).
The selected sound is output through the HEADPHONES connector and the MONITOR AUDIO connector on the rear panel. When the selector is set to the MIX position, stereo sound is output through the HEADPHONES connector, and the mixed sound of channel 1 and channel 2, through the MONITOR AUDIO connector.

Sound to be monitored	Setting of METER switch	Channel to be monitored	Setting of CH-1/MIX/CH-2 selector
Hi-fi recording sound	Hi-Fi	Channel 1	CH-1
		Channel 1 and channel 2	MIX
		Channel 2	CH-2
Normal recording sound	NORM	Channel 1	CH-1
		Channel 1 and channel 2	MIX
		Channel 2	CH-2

Recording (SVO-5800/5800P only)

Settings Using the Menu

You can set the following items relative to recording using the menu. For details, see the section "Changing the Settings of the Unit—Set-up Menu" *(page 43(E))*.

Setting the S-VHS/VHS format

Set the S-VHS REC MODE item of the VIDEO CONTROL menu to AUTO in ordinary use *(page 48(E))*.
When it is set to AUTO or ON, a video signal is recorded in the S-VHS format on S-VHS cassette, and the VHS format on VHS cassette. If AUTO is selected, the S-VHS/VHS format is automatically selected for S-VHS cassette according to the format of the tape previously recorded. If OFF is selected, recording is done in the VHS format on S-VHS cassette.

Setting of S-VHS REC MODE of VIDEO CONTROL menu	Recording format		
	VHS cassette	S-VHS cassette	
		Prerecorded in VHS	Prerecorded in S-VHS
AUTO	VHS	Normal recording: S-VHS Insert/assemble editing: VHS	S-VHS
ON	VHS	S-VHS	S-VHS
OFF	VHS	VHS	VHS

Setting the video recording level

Set the VIDEO AGC item of the VIDEO CONTROL menu to ON in ordinary use *(page 48(E))*. The recording level of the video signal is automatically adjusted during recording.

Sound output to external equipment

Normal or hi-fi sound selected with the LINE OUT item of the AUDIO CONTROL menu is output through the AUDIO OUT (NORM/Hi-Fi) connector *(page 49(E))*. Hi-fi sound is always output through the AUDIO OUT (Hi-Fi) connector.

Setting the recording pause time

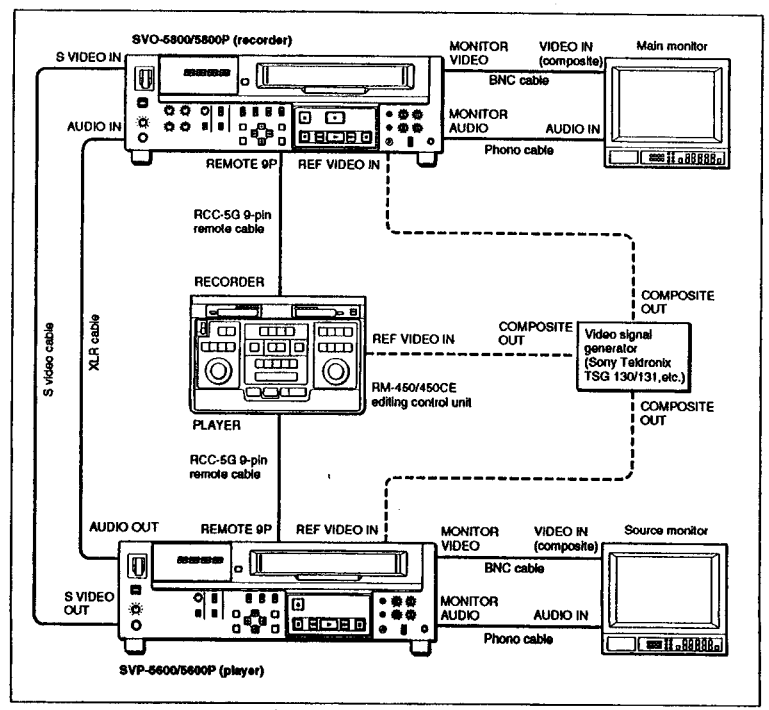
If the recording pause is held for about 5 minutes, the recording pause mode is cancelled and shifts to playback pause mode, and the tape is step-fed for about 1 second at 1/5 speed to protect the tape and video heads.
You can change the recording pause time and tape operation after recording pause cancel with the STILL TIMER item and PROTECT MODE item of the TAPE PROTECTION menu *(page 49(E))*.

Using the Unit in a System

Connecting a Player and a Recorder
— Sample Connection for Cut Editing System

The figure below shows a system for cut editing using the SVO-5800/5800P (recorder) and SVP-5600/5600P (player).

Connect the reference video signal to each piece of equipment for high precision editing (page 25(E)).
For the connections of video and audio signals and settings of the unit, see pages 26(E) and 27(E).
For details on editing operations, refer to the operation manual for the editing control unit.
For details on the connections and settings of each piece of equipment, refer to the respective operation manuals.



Sample connection for cut editing system

Using the Unit in a System

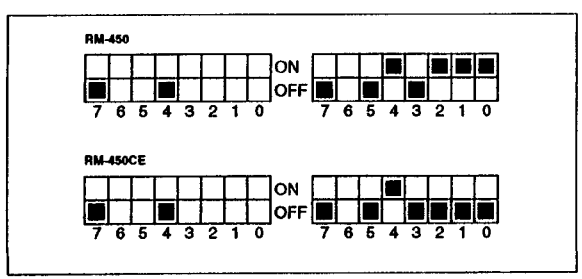
Settings of SVO-5800/5800P (recorder) and SVP-5600/5600P (player)

Switches/selectors or menu		Settings
Front panel	REMOTE/LOCAL switch	REMOTE
	VIDEO IN SELECT switch (SVO-5800/5800P only)	S-VIDEO
	BYPASS/LOCAL/REMOTE selector	LOCAL[a]
Rear panel	AUDIO IN reference input level selector	+4dBm
	AUDIO OUT reference output level selector	+4dBm
	REF VIDEO IN 75-ohm termination switch	ON[b]
Set-up menu	EDIT MODE item of VIDEO CONTROL menu	ON
	Change the settings of VIDEO CONTROL, AUDIO CONTROL and TIME CODE menus as necessary.	

a) When it is set to LOCAL, you can use the controls and screws in the TBC CONTROL block on the front panel. Set it to REMOTE when using an external TBC controller.
b) As the REF VIDEO IN connectors of the SVO-5800/5800P/SVP-5600/5600P are loop-through, the output of the signal generator can be bridge connected via each piece of equipment. Set the 75-ohm termination switch to OFF for bridge connection. Set it to ON when bridge connection is not made or this unit is the terminal equipment in the bridge connection.

Setting of the RM-450/450CE editing control unit

- Set the preroll time of the RM-450 for 5 seconds/RM-450CE for 7seconds.
- When connection is complete, insert recorded tapes into both the SVO-5800/5800P and SVP-5600/5600P and press the LEARN button on the RM-450/450CE for automatic measurement of pinch on delay time between the SVO-5800/5800P and SVP-5600/5600P.
- For higher precision editing, connect a reference video signal to each VTR and RM-450/450CE.
- Set the SYSTEM PRESET switch of the RM-450/450CE as follows:

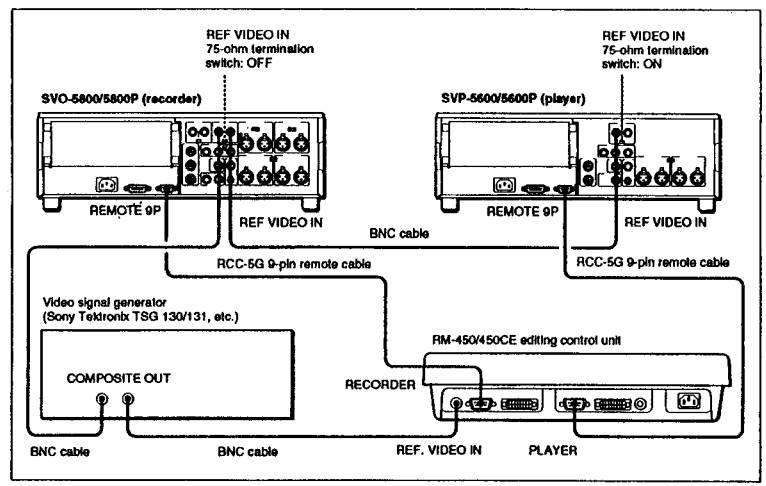


Setting the SYSTEM PRESET switch of RM-450/450CE

Note

The ROM should be changed for some RM-450CE versions depending on the serial number. Consult your Sony service representative for changing the ROM.

Connection of reference video signal and editing control unit – For higher precision editing

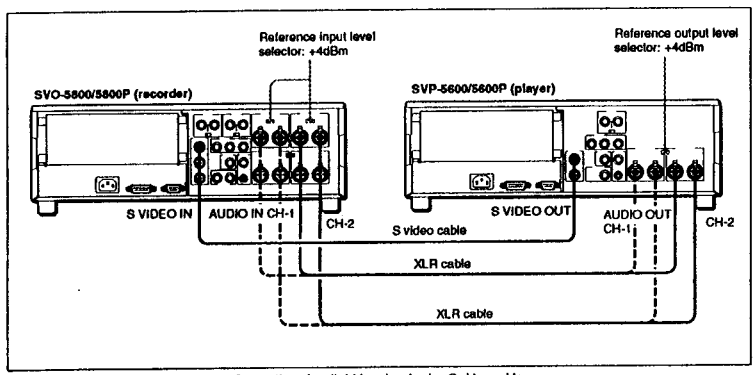


Connection of reference video signal and editing control unit

Using the Unit in a System

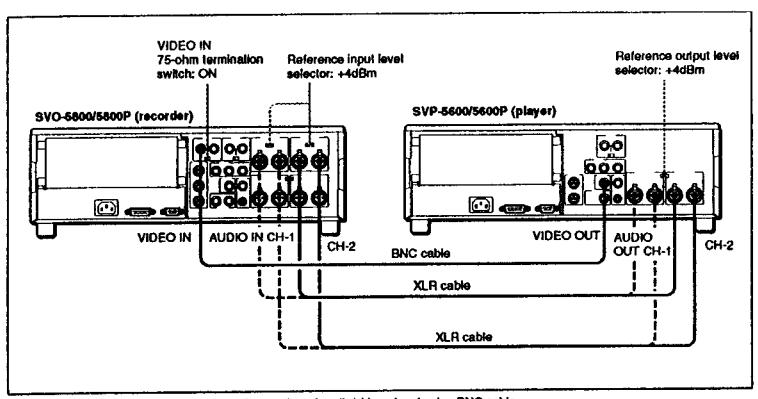
Connection of audio/video signal

Using S video cable



Connection of audio/video signal using S video cable

Using BNC cable



Connection of audio/video signal using BNC cable

Use the appropriate AUDIO IN/AUDIO OUT connectors according to the audio signals to be edited, and change the settings of the set-up menu as necessary. See "Selection and settings for the audio input/output" on page 27(E).

Selection and settings for the audio input/output

Settings of SVO-5800/5800P (recorder)

Use of the audio input signal	Setting of HI-FI REC SEL item of AUDIO CONTROL menu	Audio signals to be input
To record separate audio signals on the hi-fi audio tracks and normal audio tracks	HI-FI INPUT	Input the audio signals for hi-fi recording to AUDIO IN (HI-FI) connectors. Input the audio signals for normal audio recording to AUDIO IN (NORM/HI-FI) connectors.
To record the same audio signals on the hi-fi audio tracks and normal audio tracks	NORMAL INPUT	Input the audio signals to be recorded to AUDIO IN (NORM/Hi-Fi) connectors. (The audio signals input to AUDIO IN (Hi-Fi) connectors cannot be recorded.)

For hi-fi recording

Set the HI-FI REC item of the AUDIO CONTROL menu to ON for hi-fi recording *(page 49(E))*.

For normal recording

- Set the HI-FI REC item of the AUDIO CONTROL menu to OFF for normal recording *(page 49(E))*.
- Select the audio signal (or time data) for normal recording with the NORMAL CH-2 item and NORMAL CH-1 REC item of the AUDIO CONTROL menu *(page 49(E))*.
- Set the LIMITER item of the AUDIO CONTROL menu to ON to activate the limiter circuit. This eliminates overload in the input signal for recording with little distortion *(page 49(E))*.
- Set the DOLBY NR item of the AUDIO CONTROL menu to ON to reduce the tape noise in a high frequency range *(page 49(E))*.

Note

When the NORMAL CH-2 item of the AUDIO CONTROL menu is set to TIME CODE, normal sound cannot be recorded or monitored. If you record in this position, time code is recorded in channel 2 of the normal audio track.

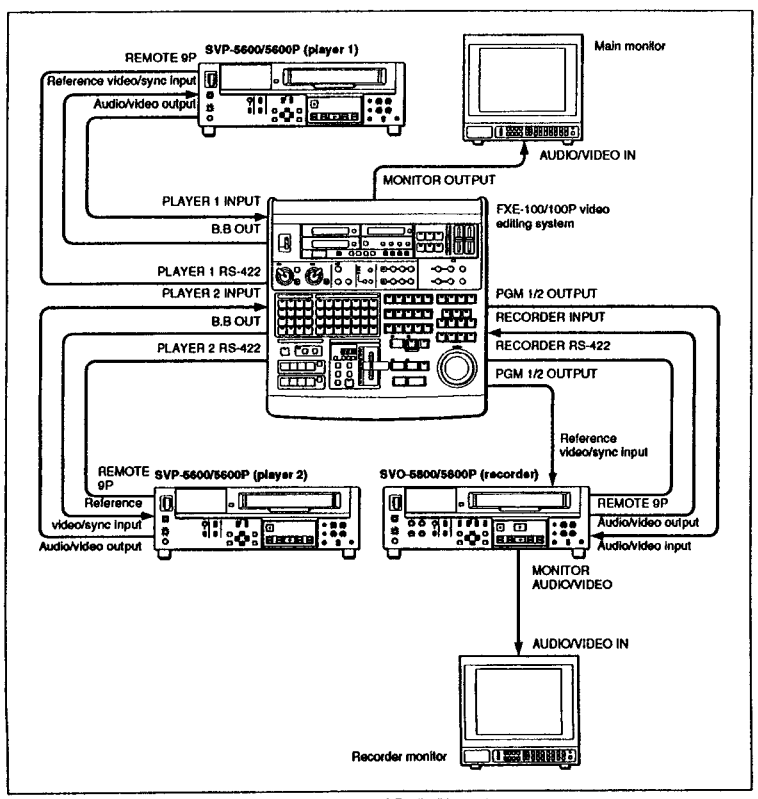
Settings of SVP-5600/5600P (player)

Use of the audio output signal	Setting of LINE OUT item of AUDIO CONTROL menu	Audio output signals
To output the recorded hi-fi audio signals and normal audio signals separately	NORMAL	The recorded hi-fi audio signals are output from AUDIO OUT (Hi-Fi) connectors. The recorded normal audio signals are output from AUDIO OUT (NORM/Hi-Fi) connectors.
To output the recorded hi-fi audio signals only	HI-FI	The recorded hi-fi audio signals are output from both AUDIO OUT (NORM/HI-FI) and AUDIO OUT (Hi-Fi) connectors.

Connecting Two Players and a Recorder
— Sample Connection for A/B Roll Editing System

The figure below shows a system for A/B roll editing using one SVO-5800/5800P (recorder) and two SVP-5600/5600P (player) units. In this system, the playback pictures of the two players can be edited with effects such as mixing and wipe.

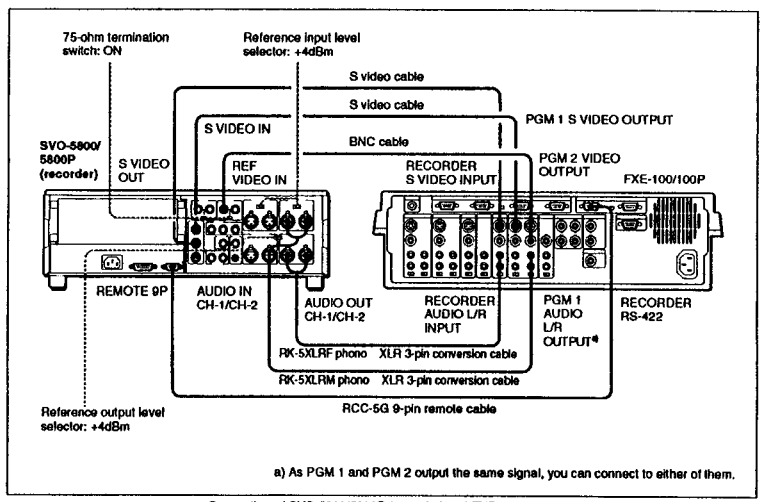
For details on the connection of SVO-5800/5800P and FXE-100/100P, and SVP-5600/5600P and FXE-100/100P, see pages 29(E) and 30(E).
For the settings of the switches and menus of SVO-5800/5800P, SVP-5600/5600P and FXE-100/100P, see page 31(E).
For details on editing operations, refer to the operation manual for the editing control unit.



Sample connection for A/B roll editing system

Connection of SVO-5800/5800P (recorder) and FXE-100/100P

When you have just one player, connect the audio/video output connector of the recorder to the RECORDER INPUT connector of the FXE-100/100P video editing system. A freeze image of the recorder can be taken into the FXE-100/100P in A roll editing, and mixing or wipe is possible with the player's image. Also, you can check the playback signal of the tape in the recorder (master tape) on the main monitor.



a) As PGM 1 and PGM 2 output the same signal, you can connect to either of them.

Connection of SVO-5800/5800P (recorder) and FXE-100/100P

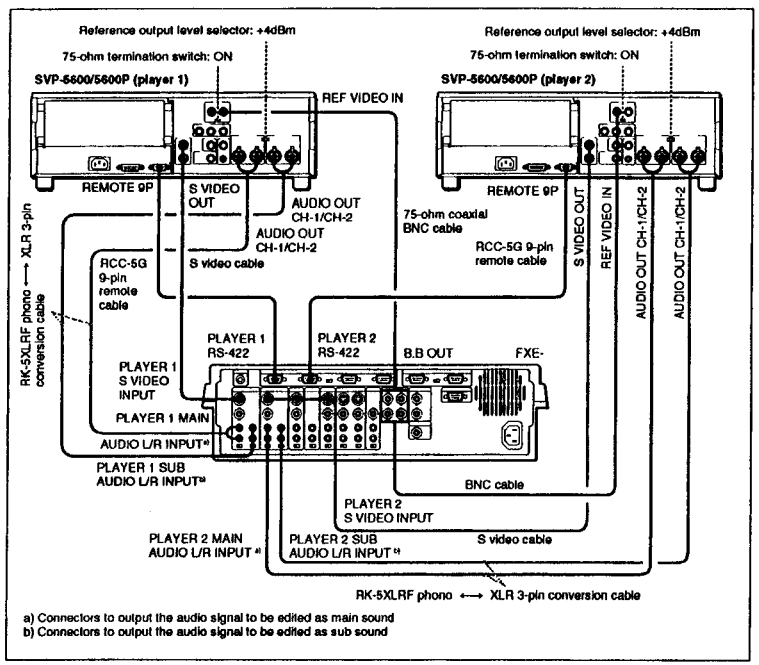
Notes

- To the REF VIDEO IN connector of the recorder, input the output signal from the PGM 1/2 VIDEO OUTPUT connector, not from B.B OUT of FXE-100/100P.
- As the REF VIDEO IN connector of the SVO-5800/5800P/SVP-5600/5600P is loop-through, the output of the signal generator can be bridge connected via each piece of equipment. Set the 75-ohm termination switch to OFF for bridge connection. Set it to ON when bridge connection is not made or the unit is the terminal equipment in the bridge connection.

Using the Unit in a System

Connection of two SVP-5600/5600P units (player 1 and player 2) and FXE-100/100P

Connect two players for A/B roll editing.


Reference output level selector: +4dBm
75-ohm termination switch: ON
SVP-5600/5600P (player 1)
REF VIDEO IN
Reference output level selector: +4dBm
75-ohm termination switch: ON
SVP-5600/5600P (player 2)
REMOTE 9P
S VIDEO OUT
AUDIO OUT CH-1/CH-2
AUDIO OUT CH-1/CH-2
S video cable
RCC-5G 9-pin remote cable
75-ohm coaxial BNC cable
RCC-5G 9-pin remote cable
S VIDEO OUT
REF VIDEO IN
AUDIO OUT CH-1/CH-2
AUDIO OUT CH-1/CH-2
RK-5XLRF phono ⟷ XLR 3-pin conversion cable
PLAYER 1 RS-422
PLAYER 2 RS-422
B.B OUT
FXE-
PLAYER 1 S VIDEO INPUT
PLAYER 1 MAIN AUDIO L/R INPUT a)
PLAYER 1 SUB AUDIO L/R INPUT b)
BNC cable
PLAYER 2 S VIDEO INPUT
PLAYER 2 MAIN AUDIO L/R INPUT a)
PLAYER 2 SUB AUDIO L/R INPUT b)
S video cable
RK-5XLRF phono ⟷ XLR 3-pin conversion cable

a) Connectors to output the audio signal to be edited as main sound
b) Connectors to output the audio signal to be edited as sub sound

Connection of two SVP-5600/5600P units (player 1 and player 2) and FXE-100/100P

Setting of FXE-100/100P video editing system

Setting of switches/selectors on the rear panel

AUDIO INPUT 600-ohm ON/OFF switch: ON
AUDIO PGM OUTPUT level selector: +4dB

Setting of set-up menu

101 VIDEO INPUT SELECT menu: S-V (S video signal)
102 PREROLL TIME menu: 5 SEC (5 seconds) (FXE-100)
7 SEC (7 seconds) (FXE-100P)

When using an editing control unit other than the FXE-100/100P

Set the editing control unit as follows:
Edit timing: 7 frames (NTSC)/8 frames (PAL)
Recommended preroll time: 5 seconds (NTSC)/7 seconds (PAL)

Settings of SVO-5800/5800P (recorder) and SVP-5600/5600P (player)

Setting of selectors/switches on the front panel

Switches/selectors	Settings	Remarks
REMOTE/LOCAL switch	REMOTE	Always in this position
INT/EXT switch (SVO-5800/5800P only)	INT	Always in this position
VIDEO IN SELECT switch (SVO-5800/5800P only)	S VIDEO	Always in this position when using S video cable
CTL/TC/U-BIT selector	—	Basically, follow the editing control unit.
LTC/AUTO/VITC selector	LTC	When editing with a reference of LTC
	AUTO	When editing a tape with LTC and VITC. However, if the values differ for LTC and VITC, do not set to this position.
	VITC	When editing with a reference of VITC
BYPASS/LOCAL/REMOTE selector	LOCAL	When using the controls and screws in TBC CONTROL on the front panel
Other switches/selectors	Set them as necessary.	

Setting of set-up menu

Menu	Items	Settings	Remarks
TIME CODE menu	RUN MODE (SVO-5800/5800P only)	FREE RUN (factory default)	Always set to this.
	VITC REC MODE (SVO-5800/5800P only)	OFF (factory default)	Set to this when VITC is not recorded.
		ON	Set to this when recording VITC.
	INT TC MODE (SVO-5800/5800P only)	PRESET (factory default)	Set to this.
VIDEO CONTROL menu	EDIT MODE	ON	Set to this for better picture quality.
AUDIO CONTROL menu	NORMAL CH-2	AUDIO (factory default)	Set to this when using 2 channels in NORMAL AUDIO.
		TIME CODE	Set to this when using LTC.
OPERATIONAL FUNCTION menu	AUTO EE SELECT (SVO-5800/5800P only)	PB	Set to this when using A-roll editing.
Other menus	Set them as necessary.		

Selection and settings for the audio input/output

Use the appropriate AUDIO IN/AUDIO OUT connectors according to the audio signals to be edited, and change the settings of the set-up menu as necessary.

See "Selection and settings for the audio input/output" on page 27(E).

Using the Unit in a System

Selecting a reference signal for the servo systems

This unit automatically selects the reference signal for the servo systems to lock from among the input video signal selected with the VIDEO IN SELECT switch, the external sync signal input from the REF VIDEO IN connector and the internally generated sync signal (or the sync signal from the TBC in some operating modes).
The table below shows the relation between the setting of the SYNC SELECT item of SERVO CONTROL menu (AUTO or EXT) and the reference signal for the servo systems in each operating mode.

Setting of SYNC SELECT item of SERVO CONTROL menu	Signal supplied		Reference signal automatically selected in each operating mode			
	Input video signal	External sync signal	Usually (except editing in the recorder's case) (Always in the player's case)		Editing/preview (recorder)	
			Playback	EE mode/ recording	Playback	EE mode/ recording
AUTO	o	o	EXT SYNC	VIDEO IN	VIDEO IN	VIDEO IN
	x	o	EXT SYNC	EXT SYNC	EXT SYNC	EXT SYNC
	o	x	INT SYNC	VIDEO IN	VIDEO IN	VIDEO IN
	x	x	INT SYNC	INT SYNC	INT SYNC	INT SYNC
EXT	o	o	EXT SYNC	EXT SYNC	EXT SYNC	EXT SYNC
	x	o	EXT SYNC	EXT SYNC	EXT SYNC	EXT SYNC
	o	x	INT SYNC	VIDEO IN	VIDEO IN	VIDEO IN
	x	x	INT SYNC	INT SYNC	INT SYNC	INT SYNC

o : signal supplied
x : signal not supplied

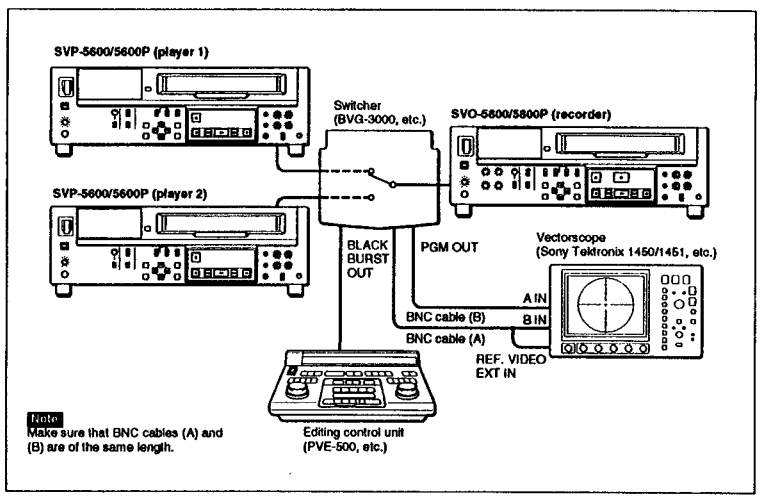
VIDEO IN: Input video signal
EXT SYNC: External sync signal
INT SYNC: Internal sync signal

About the TBC mode

The TBC is usually bypassed when the BYPASS/LOCAL/REMOTE selector on the front panel is set to BYPASS. To obtain the appropriate reference signal for the servo systems during editing, etc, the unit automatically bypasses the TBC even if the selector is set to LOCAL or REMOTE.

Adjustments for Precise Editing – Phase Adjustments

When using two or more players, as in an A/B roll editing system, phase synchronization of the signals (i.e., system sync) is necessary. For composite signals only, the subcarrier phase must also be in synchronization. If not, picture instabilities or color break-up may occur at edit points.
The FXE-100/100P video editing system and a switcher with built-in frame synchronizer, such as the DFS-500/500P, automatically adjust the sync and subcarrier phases. For other switchers, after configurating the editing system, use a vectorscope to adjust the sync and subcarrier phases of the recorder and players. Subcarrier phase adjustment is necessary only when using composite signals.



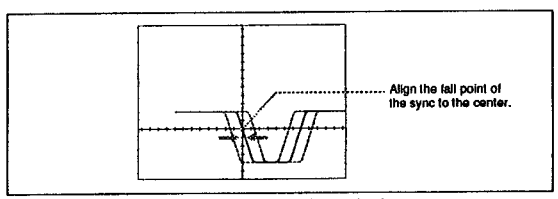
Connections for phase adjustment

Adjusting the Phase

1 Press the WFM button on the vectorscope and set WFM as follows.
The vectorscope enters the WFM mode.
SWEEP: 1 µs (2H/MAG)
FILTER: FLAT
EXT REF: EXT
GAIN: ×1

2 Press the B channel button on the vectorscope.
The black burst signal from the switcher is displayed.

3 Adjust the HORIZ POS control on the vectorscope so that the fall point of the sync of the black burst signal is aligned to the center.

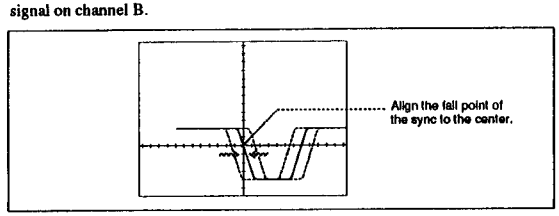


Adjusting the sync of the black burst signal

4 Output the player 1 signal from the editing control unit.

5 Press the A channel button on the vectorscope.
This displays the sync phase of the signal from player 1.

6 Adjust the SYNC PHASE adjustment screw on the front panel of player 1, using a Phillips-head screwdriver, so that the output from player 1 on channel A is in correct phase alignment with the fall point of the sync of the black burst signal on channel B.



Adjusting the sync of the player 1 signal

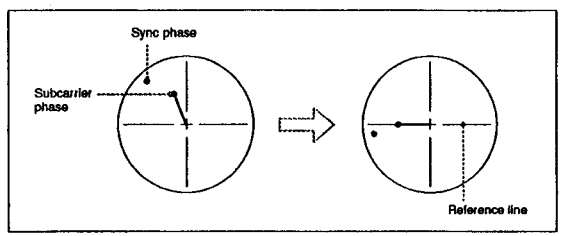
7 Output the player 2 signal from the editing control unit.
Repeat steps 5 and 6 to align the fall point of the sync of the output signal from player 2 to the center.
In this position, adjust the sync and subcarrier phases as follows.

8 Press the SCH button on the vectorscope.
The vectorscope enters the SCH mode.

9 Press the B channel button on the vectorscope.
The black burst signal from the switcher is displayed.

10 Press the EXT button on the vectorscope.
The vectorscope enters the external sync mode.

11 Adjust the phase adjustment control on the vectorscope so that the sync and subcarrier phases of the black burst signal are close to the reference line.



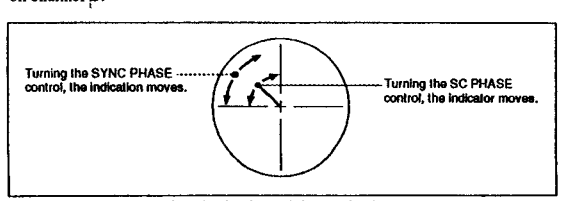
Adjusting the phase of black burst signal

Note
When component signals are used, the subcarrier phase does not appear.

12 Output the player 1 signal from the editing control unit.

13 Press the A channel button on the vectorscope.
The sync phase and the subcarrier phase (composite signals only) of the signal from player 1 are displayed.

14 Adjust the SYNC PHASE and SC PHASE adjustment screws on the front panel of player 1, using a Phillips-head screwdriver, so that the output from player 1 on channel A is in correct phase alignment with the black burst signal on channel B.



Adjusting the phase of player 1 signal

15 Output the player 2 signal from the editing control unit.
Repeat steps 13 and 14 to adjust the sync and subcarrier phases of the signal output from player 2.

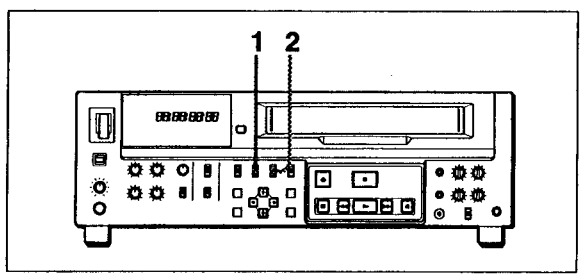
Time Data

The time data used by the SVO-5800/5800P/SVP-5600/5600P include CTL signal[1] count values, LTC[2], VITC[3] and user bit data[4]. This section describes how to display time data, how to preset the initial values, and how to synchronize with the built-in time code generator or the external time code generator.

Displaying Time Data

During recording or playback, you can display the selected time data on the monitor screen and the time counter display on the front panel of the unit.

Selecting the time data to be displayed



Displaying time data

1 Use the time counter display selector to select the data to be displayed.

Switch position	Types of time data
CTL	CTL signal
TC	Time code (LTC or VITC)
U-BIT	User bit data of the selected time code (LTC or VITC)

1) **CTL signal:** Abbreviation for control signal. It is a pulse signal recorded on the tape longitudinally in fields. By counting this signal, the running time of the tape can be learned.
2) LTC: Abbreviation for Longitudinal Time Code. It is a time code recorded along the tape (the same direction as the tape runs).
3) VITC: Abbreviation for Vertical Interval Time Code. It is a time code inserted into the vertical blanking interval of video signals.
4) **User bit data:** A 32-bit section of the time code. It is reserved for the user to record necessary data, such as year, date, tape I.D. number and program I.D. number.

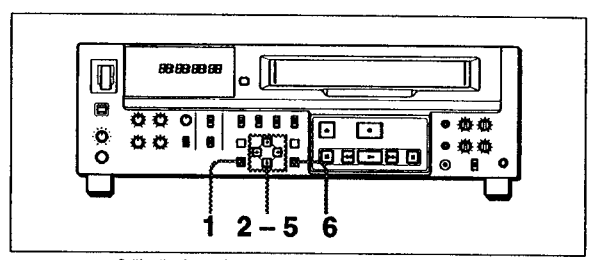
2 When TC or U-BIT is selected, use the time code selector to select the time code (LTC, AUTO, VITC).
When AUTO is selected, VITC is automatically read and displayed for playback speed within a range of +1/2, and LTC for other speeds.

Resetting the CTL display to "0:00:00:00"
Press the COUNTER RESET button.

Note
When the time data signal output through the MONITOR VIDEO connector is recorded, the superimposed data may slightly differ from the actual time data.

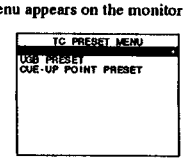
Setting the Time Code and User Bit Initial Values (SVO-5800/5800P only), and Cue-up Point[1]

The SVO-5800/5800P has a built-in time code generator. Using this built-in time code generator, you can preset the initial values of the time code and user bit to be recorded on the tape. In addition, you can preset the time code of the cue-up point on the SVO-5800/5800P and SVP-5600/5600P. If the time code of the cue-up point is set, the desired scene can be quickly located.



Setting the time code and user bit initial values, and cue-up point

1 Press the TC PRESET button.
The time code preset menu appears on the monitor screen.

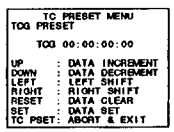


Time code preset menu

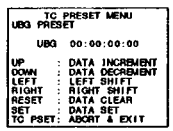
(continued)

1) **Cue-up:** To locate the desired point and pause.

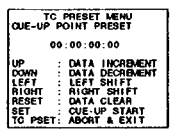
2 Use the ↑↑ buttons to select the item, and press the → button.
The preset menu of the selected time data appears on the monitor screen.



TCG PRESET (time code preset) menu



UBG PRESET (user bit preset) menu



CUE-UP POINT PRESET menu

3 Use the , ←← buttons to select the digit corresponding to the data to be changed.

4 Use the ↑↑ buttons to input the data.
Note that user bit data values are hexadecimal (digits 0-9 and A-F).

5 Repeat steps 3 and 4 to set all the digits.
To reset the value to 00:00:00:00, press the RESET(NO) button.

6 Press the SET(YES) button.

TCG PRESET or UBG PRESET menu:
A display "NOW SAVING..." appears on the monitor screen, and the data is saved in the memory of the unit.
Once the setting is saved, the monitor screen and the time counter display return to normal.

CUE-UP POINT PRESET menu:
Cueing up starts.

Notes

- If you turn off the unit while it is in the process of saving the settings, settings may be lost. Wait until saving is complete before turning the unit off.
- As LTC and VITC use the same generator, you cannot set different values for each of them.

Setting the run mode of the built-in time code generator

The factory default setting of the RUN MODE item of the TIME CODE menu is FREE RUN. The time code generator begins to run from the instant the preset value is saved. Set it to REC RUN when you want the time code generator to run during recording *(page 46(E))*.

Setting the initial value of the time code to the present time

Set the RUN MODE item of the TIME CODE menu to FREE RUN, and set the initial value of the time code to the present time following the procedures on pages 37(E) and 38(E).

Setting the drop-frame mode [1]

The factory default setting of the DF MODE item of the TIME CODE menu is OFF(NDF). The time code generator and the CTL counter operate in non-drop-frame mode [2]. Set it to ON(DF) to operate in the drop-frame mode *(page 46(E))*.

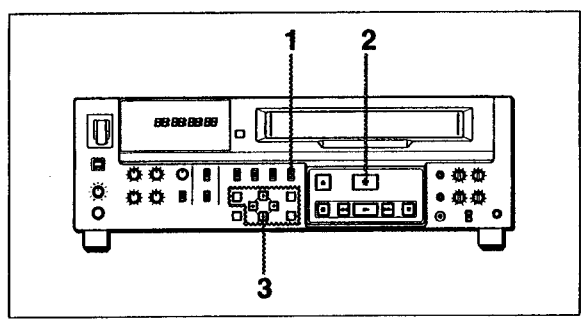
1) **Drop-frame mode:** In NTSC format, the actual number of frames per second is approximately 29.97, while that for the time code is specified as 30. Drop frame mode is a mode in which the time code is advanced in such a way that the difference in frame values between real time and the time code is corrected. In this mode, two frames are skipped at the beginning of each minute, except for every tenth minute, so that the frame value for time codes matches that for real time.

2) **Non-drop-frame mode:** A mode of advancing the time code in such a way that the difference in frame values between real time and the time code is neglected. Using this mode produces a difference of approximately 86 seconds per day between real time and the time code. Use this mode when the number of frames is important, such as in computer graphics.

Recording Time Code and User Bit on the Tape (SVO-5800/5800P only)

There are two ways of recording the time data – recording the data output from the built-in time code generator, and recording the external time data input. The external time data input can be recorded without synchronizing, or recorded after synchronizing the internal time code generator with the external data.

Recording the time data output from the internal time code generator



Recording the time data output from the internal time code generator

1 Set the time code generator selector to INT (internal time code generator).

2 Press the REC button to check the value of the internal time code generator. (The internal generator value is displayed during recording.)

3 Set the TIME CODE menu items as follows *(pages 46(E) and 47(E))*:

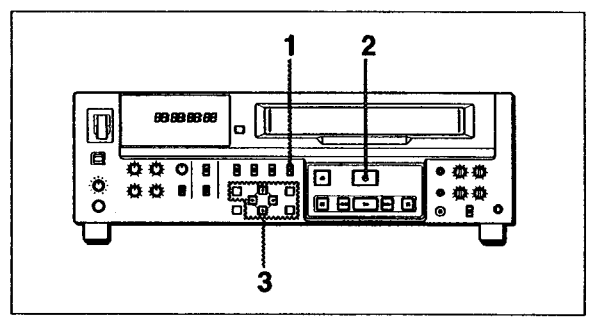
Menu Items	Settings
RUN CODE	FREE RUN or REC RUN
DF MODE	ON or OFF
VITC REC MODE	ON when recording VITC
INT TC MODE	Select whether to synchronize with the preset initial value, or the time code or user bit values recorded on the tape.
VITC POSI. 1 VITC POSI. 2	Select the insertion line of the VITC signal.

4 Set other menus according to the time data to be recorded.
- Set the NORMAL CH-2 item of the AUDIO CONTROL menu to TIME CODE for recording LTC *(page 49(E))*.
- Set the BLANKING item of the VIDEO CONTROL menu to ON (factory default setting) for recording VITC *(page 48(E))*.
  In this position, the VITC inserted in the input video signal is erased.

The above is the procedure for recording the time code output from the internal time code generator.

Recording the time data from the external time code generator

The time code (LTC or VITC) from the external time code generator can be recorded directly, or recorded after synchronizing the internal time code generator with the external data.
We recommend that you synchronize the internal time code generator if you set several VTRs to the same time, or if you want to record the playback time code from another VTR without deterioration.



Recording the time data output from the internal time code generator

1 Set the time code generator selector to EXT (external generator).

2 Press the REC button to check the internal time code generator value. (The internal generator value is displayed during recording.)

(continued)

3 Set the TIME CODE menu items as follows *(pages 46(E) and 47(E))*:

Menu Items	Settings
RUN CODE	Automatically set to FREE RUN.
DF MODE	Automatically set to the same mode as that of the input time code (drop-frame mode or non-drop-frame mode).
VITC REC MODE	Set to OFF when recording VITC inserted in the external video signal without synchronization. Set to ON when recording VITC while synchronizing the internal time code generator.
EXT TC MODE	Set whether to record the external time code input with or without synchronizing the internal time code generator with the external time code.
EXT REGEN TC	Select the time code (LTC or VITC) from the external generator.
VITC POSI. 1 VITC POSI. 2	Select the insertion line of the VITC signal.

4 Set the following menus according to the time data to be recorded.
- Set the NORMAL CH-2 item of the AUDIO CONTROL menu to TIME CODE for recording LTC *(page 49(E))*.
- Set the BLANING item of the VIDEO CONTROL menu as follows *(page 48(E))*:

ON (factory default setting)	for recording VITC synchronized with the internal time code generator. In this position, VITC inserted in the input video signal is erased.
OFF	for recording VITC inserted in the input video signal.

The above is the procedure for recording the time code output from the external time code generator.

Synchronizing the internal time code generator with the external time data

Once it is synchronized, the internal time code generator keeps on running even if the external generator is disconnected.

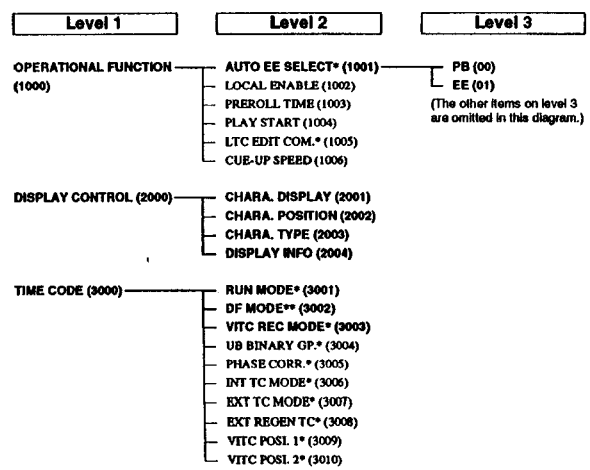
Changing the Settings of the Unit — Set-up Menu

The text information and major initial settings to be superimposed by the unit can be selected with a menu.
This section describes the structure of all the menus, the meaning of each item and how to change the settings.

Structure of Set-up Menu

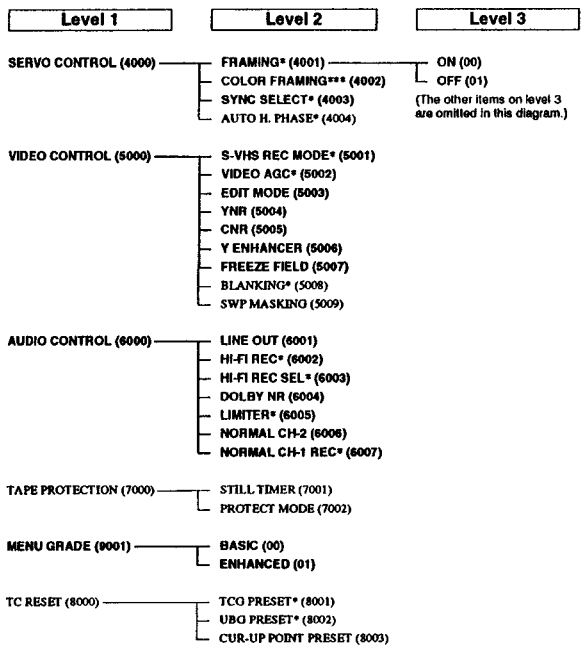
The menu screens are arranged in a three-level tree structures, as shown in the diagram below. The top-level selections (level 1) access the main divisions of the settings, and the settings themselves are made on levels 2 and 3. The settings are divided into two groups: the basic settings, to which frequent access is normally required, and the higher grade extended settings.
The settings of the menu are stored in the non-volatile memory; therefore they are not erased when the unit is turned off.

- The bold characters in the diragram indicate basic settings, and the normal characters, extended settings.
- The settings with an asterisk (*) are displayed only on the SVO-5800/5800P; those with two asterisks (**) only on the SVO-5800/SVP-5600; those with three asterisks (***) only on the SVP-5600P.
- The figures in parenthesis ( ) are code numbers displayed on the time counter display of the front panel of the unit.



(continued)

Changing the Settings of the Unit — Set-up Menu



Set-up Menu Descriptions

The table below lists the menu settings and explains the meaning of each setting.

- Factory default settings are marked with a frame [ ].
- The figures in parenthesis ( ) are code numbers displayed on the time counter display of the unit.

Menu Items	Description
OPERATIONAL FUNCTION (1000) Settings relative to the operation of the unit	
AUTO EE SELECT (1001) (SVO-5800/5800P only)	Determines the mode in which the unit outputs the video/audio input signals from other equipment when the unit received a stop command through the 9-pin REMOTE connector.
[PB(00)]	Outputs the playback signal of the tape.
EE(01)	Outputs in EE mode.
LOCAL ENABLE (1002)	Selects which of the tape transport control buttons operate when the REMOTE/LOCAL switch is set to REMOTE.
[STOP & EJECT (00)]	Only the STOP and EJECT buttons are enabled.
ALL DISABLE (01)	All of the tape transport control buttons are disabled.
PREROLL TIME (1003)	Sets the preroll time in seconds, from 0 to 15 when the REMOTE/LOCAL switch is set to REMOTE. (If it is set from the editing control unit connected to the 9-pin REMOTE connector, this setting is ignored and the editing control unit setting takes precedence.)
00 SEC (00) – [5 SEC (05)] 15 SEC (15)	
PLAY START (1004)	Sets the timing for switching to playback mode from stop mode in frames, from 4 to 16. It minimizes the phase adjustments and reduces the preroll time when editing.
04 FRAME DELAY (04) – [05 FRAME DELAY (05)] – 16 FRAME DELAY (16)	
LTC EDIT COM. (1005) (SVO-5800/5800P only)	Sets the command for insert editing of LTC from the 9-pin REMOTE connector.
[A3 (TC) (00)]	LTC recording for only A3 command.
A2&A3 (TC) (01)	LTC recording for A2 and A3 commands.
CUE-UP SPEED (1006)	Setting of cue-up operation
[F.FWD & REW SPEED (00)]	When the cue-up point is more than a minute away, the unit fast forwards or rewinds the tape.
SHUTTLE MAX SPEED (01)	Cue-up operation always occurs in the shuttle mode.
DISPLAY CONTROL (2000)	**Settings relative to display of the monitor screen and the indicator of the unit**
CHARA. DISPLAY (2001)	Sets whether the text information is output through the MONITOR VIDEO connector or not.
OFF (00)	Does not output the text information.
[ON (01)]	Outputs the text information.
CHARA. POSITION (2002)	Sets the position of the characters to be displayed on the monitor screen. Set while watching the monitor screen.
01,01 – [11,06] – 11,11 (SVO-5800/SVP-5600) 01,01 – [13,06] – 13,11 (SVO-5800P/SVP-5600P)	The first two digits are for vertical direction, and the latter two digits for horizontal direction. As the number gets bigger, the position moves toward the bottom and the right. The factory default setting is in the bottom center of the screen.

Changing the Settings of the Unit — Set-up Menu

Menu Items	Description
CHARA. TYPE (2003)	Type of character to be output from the MONITOR VIDEO connector to the monitor screen. Set while watching the monitor screen.
[BACKGROUND (00)]	White characters on black background.
OUTLINE (01)	White characters with black outline.
DISPLAY INFO (2004)	Sets the text information to be displayed on the monitor screen. As for the time data, the data selected by the CTL/TC/U-BIT selector and the LTC/AUTO/VITC selector of the unit is displayed.
[TIME DATA & STATUS (00)]	Displays the time data and the operation status of the unit.
TIME DATA & UB (01)	Displays the time data and user bits.
TIME DATA & CTL (02)	Displays time data and CTL.
TIME DATA ONLY (03)	Displays time data only.
TIME CODE (3000) Settings relative to time code generator	
RUN MODE (3001) (SVO-5800/5800P only)	Sets run mode of the time code generator.
[FREE RUN (00)]	Time code generator runs all the time.
REC RUN (01)	Time code generator runs only while recording.
Note Set to FREE RUN (00) when editing.	
DF MODE (3002)(SVO-5800/SVP-5600 only)	Selects the drop-frame mode of the time code generator and CTL counter (CTL counter only for SVP-5600).
[OFF (NDF) (00)]	Non-drop-frame mode. Set to this when the number of frames is important such as in computer graphics.
ON (DF) (01)	Drop-frame mode.
VITC REC MODE (3003) (SVO-5800/5800P only)	Sets whether to record VITC or not.
OFF (00)	Does not record VITC.
[ON (01)]	Records VITC.
UB BINARY GP. (3004) (SVO-5800/5800P only)	Selects the user bit binary group flag of the time code generator.
[NOT SPECIFIED (00)]	Character set is not specified.
ISO CHARACTER (01)	8-bit character which conforms to ISO 646 and ISO 2022
UNASSIGNED 1 (10)	Not specified.
UNASSIGNED 2 (11)	Not specified.
Note When the INT/EXT switch is set to EXT, the user bit binary group flag setting follows the setting in the time code selected by the EXT REGEN TC (3008) on next page.	
PHASE CORR. (3005) (SVO-5800/5800P only)	Selects whether the phase (LTC) of the time code generator is corrected or not.
[OFF (00)]	Phase is not corrected.
ON (01)	Phase is corrected.
INT TC MODE (3006) (SVO-5800/5800P only)	Selects the mode of the internal time code generator when the INT/EXT switch is set to INT.
[PRESET (00)]	The time code and user bit follow the values preset on this unit or the externally preset values through the 9-pin REMOTE connector.
TC & UB REGEN (01)	The time code and user bit are synchronized with the data recorded on the tape.
TC REGEN (02)	The time code is synchronized with the data recorded on the tape, and the user bit follows the value preset on the unit or the externally preset values through the 9-pin REMOTE connector.
UB REGEN (03)	The user bit is synchronized with the data recorded on the tape, and the time code follows the value preset on the unit or the externally preset values through the 9-pin REMOTE connector.
Note Be sure to set to PRESET(00) when editing.	
EXT TC MODE (3007) (SVO-5800/5800P only)	Selects the mode of the internal time code generator when the INT/EXT switch is set to EXT.
PRESET (00)	Records the LTC input through the TIME CODE IN connector.
[TC & UB REGEN (01)]	The time code and user bit are synchronized with the time code selected by the EXT REGEN TC below.
TC REGEN (02)	The time code is synchronized with the time code selected by the EXT REGEN TC below, and the user bit data with the value preset on this unit.
UB REGEN (03)	The user bit follows the time code selected by the EXT REGEN TC below, and the time code data with the value preset on this unit.
EXT REGEN TC (3008) (SVO-5800/5800P only)	Selects the external time code to synchronize the internal time code generator.
[LTC (00)]	Synchronizes with the LTC input through the TIME CODE IN connector.
VITC (01)	Synchronizes with the VITC input through the VIDEO IN connector.
VITC POSI.1 (3009) (SVO-5800/5800P only)	Selects the insertion line of the VITC signal between 10 and 21 (SVO-5800) or 7 and 22 (SVO-5800P).
10 LINE (10) - [16 LINE (16)] - 21 LINE (21)(SVO-5800)	
7 LINE (07) - [19 LINE (19)] - 22 LINE (22)(SVO-5800P)	
VITC POSI. 2 (3010) (SVO-5800/5800P only)	Selects the insertion line of the VITC signal between 10 and 21 (SVO-5800) or 7 and 22 (SVO-5800P).
10 LINE (10) - [18 LINE (18)] - 21 LINE (21)(SVO-5800)	
7 LINE (07) - [21 LINE (21)] - 22 LINE (22)(SVO-5800P)	
SERVO CONTROL (4000) (SVO-5800/5800P only) Settings relative to servo control	
FRAMING (4001) (SVO-5800/5800P only)	Selects whether framing servo is controlled or not.
OFF (00)	Framing servo is not controlled. Set to this position when editing tape without frame control, such as tape recorded with a home VTR.
[ON (01)]	Framing servo is controlled. Set to this position in ordinary use.
COLOR (02)	Color framing servo is controlled.
COLOR FRAMING (4002) (SVP-5600P only)	Selects whether color framing servo for the signal input through REF VIDEO IN is controlled or not.
[OFF (00)]	Color framing servo is not controlled.
ON (01)	Color framing servo is controlled.
SYNC SELECT (4003) (SVO-5800/5800P only)	Selects the reference signal for servo control.
EXT (00)	Use the signal input through REF VIDEO IN as a reference.
[AUTO (01)]	Change the reference signal according to the mode of the VTR.
AUTO H PHASE (4004) (SVO-5800/5800P only)	Select the phase of the video signal to be recorded on the tape. It prevents picture instability of the editing point at the time of interchangeable editing due to the difference in head changing position.
[OFF (00)]	Set the phase to 6.5H. Set to this position when recording frame by frame, such as in animation.
ON (01)	Align the phase with that of the tape to be edited. Set to this position in ordinary use.

Changing the Settings of the Unit — Set-up Menu

Menu items	Description
VIDEO CONTROL (5000)	**Settings relative to video signal control**
S-VHS REC MODE (5001) (SVO-5800/5800P only)	Selects the recording format.
OFF (00)	Records in VHS format regardless of type of cassette.
ON (01)	Records in S-VHS format on S-VHS cassette, and VHS format on VHS cassette.
[AUTO (02)]	Automatically selects S-VHS or VHS according to the previously recorded format of the tape, when editing on S-VHS cassette.
VIDEO AGC (5002) (SVO-5800/5800P only)	Selects whether the video level is automatically adjusted or not during recording.
OFF (00)	Video level is not automatically adjusted.
[ON (01)]	Video level is automatically adjusted.
EDIT MODE (5003)	Selects the picture quality according to the unit's operating mode.
[OFF (00)]	Set to this position for normal playback.
ON (01)	Set to this position when editing.
YNR (5004)	Selects the level of the digital luminance noise reduction circuit.
OFF (00)	Does not activate.
LEVEL 1 (01)	Weak level
[LEVEL 2 (02)]	Medium level
LEVEL 3 (03)	Strong level
Note: After-image may be visible if you dub on a tape repeatedly with YNR set to a position other than OFF (00).	
CNR (5005)	Selects the level of the digital chroma noise reduction circuit.
OFF (00)	Does not activate.
LEVEL 1 (01)	Weak level
LEVEL 2 (02)	Medium level
[LEVEL 3 (03)]	Strong level
Note: After-image may be visible if you dub on a tape repeatedly with CNR set to a position other than OFF (00).	
Y ENHANCER (5006)	Selects whether the digital luminance enhancer circuit is activated or not.
OFF (00)	Digital luminance enhancer circuit is not activated.
[ON (01)]	Digital luminance enhancer circuit is activated.
FREEZE FIELD (5007)	Selects which image to freeze when the FREEZE command is received during normal playback.
[COMMAND FIELD (00)]	Freezes the image of the same field when the command is received.
1ST FIELD (01)	Freezes the image of the first field at any time.
2ND FIELD (02)	Freezes the image of the second field at any time.
BLANKING (5008) (SVO-5800/5800P only)	Determines whether or not to mask the data inserted in the V blank during recording.
OFF (00)	Blanking is not done.
[ON (01)]	Blanking is done for the lines between 10 and 21 (all lines) (SVO-5800) or 7 and 22 (all lines) (SVO-5800P) of V-BLANK.
SWP MASKING (5009)	Determines whether or not to do masking on the video signal switching portion during playback with the TBC set to ON.
[OFF (00)]	Masking is not done.
ON (01)	Masking is done.

Menu items	Description
AUDIO CONTROL (6000)	**Settings relative to audio signal control**
LINE OUT (6001)	Selects the signal to be output from the AUDIO OUT (NORM/Hi-Fi) connector.
HI-FI (00)	Outputs the audio signal of hi-fi recording.
[NORMAL (01)]	Outputs the audio signal of normal audio recording.
HI-FI REC (6002) (SVO-5800/5800P only)	Determines whether the audio signal is hi-fi recording or not.
OFF (00)	Not hi-fi recording
[ON (01)]	Hi-fi recording
HI-FI REC SEL (6003) (SVO-5800/5800P only)	Selects the audio signal for hi-fi recording.
HI-FI INPUT (00)	Records the signal to be input through the AUDIO IN (Hi-Fi) connector.
[NORMAL INPUT (01)]	Records the signal to be input through the AUDIO IN (NORM/Hi-Fi) connector.
DOLBY NR (6004)	Determines whether the Dolby noise reduction circuit is activated for normal audio or not.
[OFF (00)]	Dolby noise reduction circuit is not activated.
ON (01)	Dolby noise reduction circuit is activated.
LIMITER (6005) (SVO-5800/5800P only)	Determines whether the limiter circuit is activated for normal audio or not.
[OFF (00)]	Limiter circuit is not activated.
ON (01)	Limiter circuit is activated.
NORMAL CH-2 (6006)	Selects the use of channel 2 for normal audio recording.
[AUDIO (00)]	Used for audio recording.
TIME CODE (01)	Used for time code recording.
Notes: • In AUDIO position, time code noise is output through the audio output and monitor output of channel 2 of the normal audio track if you play back a tape on which time code (LTC) is recorded in channel 2. • In TIME CODE position, the sound recorded in channel 2 of the normal audio track cannot be output or monitored if you play back a tape on which the sound is recorded in channel 2.	
NORMAL CH-1 REC (6007) (SVO-5800/5800P only)	Selects the audio signal to be recorded on channel 1 for normal recording.
[CH-1 ONLY (00)]	Records the signal input through CH-1 of the AUDIO IN (NORM/Hi-Fi) connector.
CH-1/CH-2 MIX (01)	Records the mixed signals input through CH-1 and CH-2 of the AUDIO IN (NORM/Hi-Fi) connector.
TAPE PROTECTION (7000)	**Settings relative to tape protection**
STILL TIMER (7001)	Selects the time from the playback/record pause mode (pause/freeze picture) to the mode set by PROTECT MODE.
[5 MIN (00)], 4 MIN (01), 3 MIN (02), 2 MIN (03), 1 MIN (04), 50 SEC (05), 40 SEC (06), 30 SEC (07), 20 SEC (08), 10 SEC (09), 5 SEC (10), 0.5 SEC (11)	
PROTECT MODE (7002)	Selects the tape protect mode, which shifts after the time set by the STILL TIMER passes.
[STEP FWD (00)]	Tape is step-fed in the forward direction at 1/5 speed for about 1 second.
STOP (01)	Enters the stop mode.
TENSION RELEASE (02)	Enters the tension release mode.

Changing the Settings of the Unit — Set-up Menu

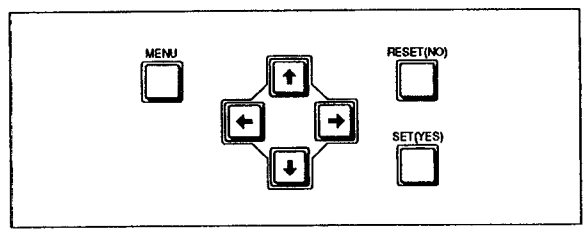
Menu items	Description
MENU GRADE (9001)	**Selects the menu to be displayed**
BASIC (00)	Displays only the basic settings.
ENHANCED (01)	Displays the basic settings and extended settings.
TC PRESET (8000)	**Settings relative to preset of time code value**
TCG PRESET (8001) (SVO-5800/5800P only) Initial value setting menu for time code	
UGB PRESET (8002) (SVO-5800/5800P only) Initial value setting menu for user bit	
CUE-UP POINT PRESET (8003) Selects the time code of the cue-up point.	

Changing the Settings of Set-up Menu

Although the menu settings are divided into basic and extended settings, the method of the settings is the same.

Buttons used to change the settings

This operation uses the following buttons on the front panel.



MENU button	• Opens the menu and enters the menu mode. • Closes the menu and quits the menu mode.
↑↓ buttons	Move the reverse video cursor up and down to change the settings and conditions within a level. If this button is held down, the reverse video cursor continues to move.
←→ buttons	• The → button moves to the menu at the next lower level. • The ← button moves to the menu at the next higher level. If either button is held down, the reverse video cursor continues to move.
SET(YES) button	• Stores the changed settings in the memory. • Answers "YES" to a question on the monitor screen.
RESET(NO) button	• Initializes the settings (return to the factory default settings). • Answers "NO" to a question on the monitor screen.

Notes

- If you turn off the unit after changing the settings while it is in the process of saving the settings, the settings may be lost. Wait until saving is complete before turning the unit off.
- If you press the MENU button without pressing the SET(YES) button, the new settings will not be stored. "ABORT!" is displayed on the monitor screen for 0.5 seconds and the menu is forced to finish. Be sure to press the SET(YES) button after changing the settings.

Changing the Settings of the Unit — Set-up Menu

Changing the settings

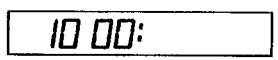
This section describes how to change the settings. For example, changing the PROTECT MODE of the TAPE PROTECTION menu to STOP. See page 44(E) to confirm that this is an extended setting and is level 2 of the TAPE PROTECTION menu.

Displaying the extended settings

1 Press the MENU button.
All the basic settings of the level 1 menu appear on the monitor screen.
The reverse video cursor shows the current selection. The arrow on the right indicates that there is a lower level setting or condition.
The time counter display of the unit shows the selected setting only.

Level 1 menu display (basic setting)

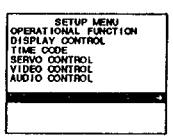
Monitor screen

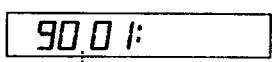


Time counter display

2 Press the [↑] button to select "MENU GRADE: BASIC."
A colon (:) in front of BASIC indicates the factory default setting.

Selecting the setting change menu

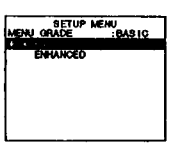


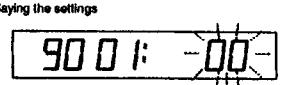


Code number of MENU GRADE (9001)

3 Press the [↓] button.
The settings of MENU GRADE are displayed.
The current selection appears on the monitor screen in reverse video. The arrow on the left indicates that there is an upper level setting. An asterisk (*) in front of BASIC indicates the factory default setting.

Displaying the settings

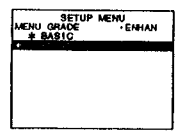


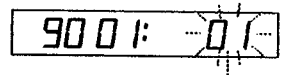


The code number of BASIC (00) flashes.

4 Press the [↑] button to select "ENHANCED."

Selecting the setting to be changed

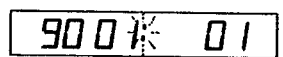




The code number of ENHANCED (01) flashes.

5 Press the SET(YES) button.
The message shown below appears and the new setting is saved in the memory. When you open the menu the next time, the extended settings will appear on the monitor screen.

Messages during saving



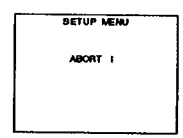
Flashes during saving.

Once the saving operation is complete, both the monitor screen and time counter display return to the normal state.

Notes

- If you turn off the unit while it is in the process of saving the settings, the settings may be lost. Wait until saving is complete before turning the unit off.
- If you press the MENU button without pressing the SET(YES) button, the new settings are not saved. The display shown below appears for 0.5 seconds and the menu is forcibly exited. Be sure to press the SET(YES) button after changing the settings.

Message of forcibly exiting the menu



(continued)

Changing the Settings of the Unit — Set-up Menu

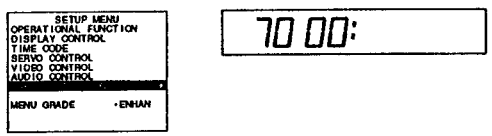
Changing the settings

1 Press the MENU button.
All the extended settings of level 1 appear on the monitor screen.
The reverse video cursor shows the current selection, "MENU GRADE • ENHAN," made in the previous section, "Displaying the extended settings."
The point " • " in front of ENHAN indicates that the setting differs from the factory default setting.

Displaying level 1 extended settings

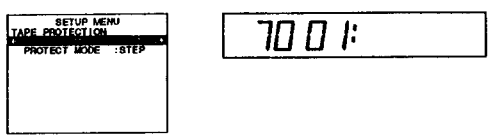
2 Press the ⊡ button to select "TAPE PROTECTION."

Selecting setting change menu



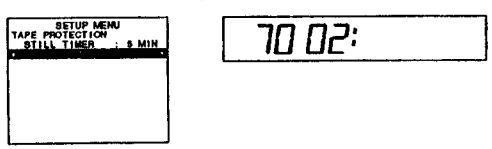
3 Press the ⊟ button.
The level 2 settings of TAPE PROTECTION appear.

Displaying settings



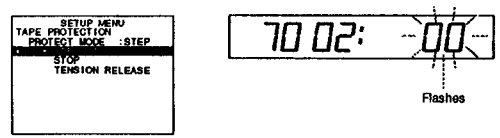
4 Press the ⊡ button to select "PROTECT MODE."

Selecting the setting change item



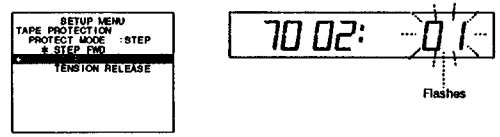
5 Press the ⊟ button.
The level 3 settings appear as a lower level of PROTECT MODE.

Displaying setting conditions



6 Press the ⊡ button to select "STOP."

Selecting the setting to be changed



- Press the RESET(NO) button to initialize this setting (return to the factory default setting).

7 Press the ⊟ button to return to the upper level when changing other settings, and repeat steps 2 to 6.

8 Press the SET(YES) button.
The display "NOW SAVING..." appears on the monitor screen, the colon ":" on the time counter display flashes, and the new setting is saved in the memory. Once the saving operation is complete, both the monitor screen and time counter display return to the normal state.

Notes

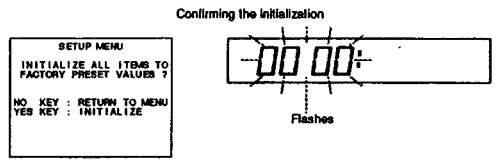
- If you turn off the unit while it is in the process of saving the settings, the settings may be lost. Wait until saving is complete before turning the unit off.
- If you press the MENU button without pressing the SET(YES) button, the new settings are not saved. "ABORT!" is displayed for 0.5 seconds and the menu is forcibly exited. Be sure to press the SET(YES) button after changing the settings.

Changing the Settings of the Unit — Set-up Menu

Initializing all the settings

1 Press the MENU button to display the level 1 settings.

2 Press the RESET(NO) button.
The display below appears on the monitor screen, which is intended to ask the user to confirm the initialization.



3 Press the SET(YES) button.
This returns all the menu settings to their factory defaults. The message "NOW SAVING..." appears on the monitor screen, the colon ":" on the time counter display flashes, and the new settings are saved in the memory.

- If you press the RESET(NO) button instead of the SET(YES) button, the initialization is not carried out, and the display returns to the level 1 menu screen.

Note

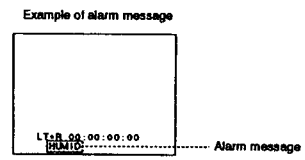
If you turn off the unit while it is in the process of saving the settings, the initialization cannot be done. Wait until saving is complete before turning the unit off.

Operational Problems

This section describes the alarm messages which indicate misoperations or problems with the unit and what to do in such cases. Check this section before consulting your Sony service representative.

Alarm Messages

There are a number of messages which may appear on the monitor screen during operation.



These alarm messages indicate misoperations or problems with the unit, such as condensation on the drum. Check the following table in such cases.

Note

To display these messages on the monitor screen, the monitor must be connected to the MONITOR VIDEO connector, and the CHARA. DISPLAY item of the DISPLAY CONTROL menu must be set to ON *(page 45(E))*.

List of alarm messages

The alarm messages which are likely to be displayed are as listed below.

Alarm messages on the monitor screen	Meaning of alarm	What to do
HUMID	Condensation[1] has been detected.	Cassette is ejected automatically. Keep the power on and wait until this message disappears.
NOT LOCAL!	REMOTE mode is selected.	Set the REMOTE/LOCAL switch to LOCAL.
NOT TC/UB SELECT! NOT TCG PRESET! NOT UBG PRESET!	CTL mode is selected.	Set the CTL/TC/U-BIT selector to TC or U-BIT.
NOT INTERNAL!	External time code generator mode is selected.	Set the EXT/INT switch to INT.

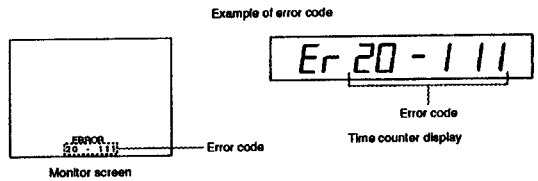
1) **Condensation:** If the unit is suddenly moved from a cold to a warm location, or used in a hot room, moisture from the air can condense on the head drum. This is called condensation, and if the tape runs in this condition, the tape may stick to the drum, in which case it is highly likely to be damaged.

Self-Diagnosis Functions – Error Codes

This unit is provided with self-diagnosis functions which detect internal faults. If a fault is detected, the unit displays an error code on the monitor screen and the time counter display of the unit.

Note

To display the error codes on the monitor screen, the monitor must be connected to the MONITOR VIDEO connector, and the CHARA. DISPLAY item of the DISPLAY CONTROL menu must be set to ON *(page 45(E))*.



Consult your Sony service representative if an error code is displayed.

Troubleshooting Chart

Tape problems		
Symptom	**Cause**	**Remedy**
Recording is not possible.	The safety tab on the cassette is broken.	Cover it with plastic tape, or use another tape.
The tape transport buttons (PLAY, F FWD, REW buttons, etc.) do not operate.	The REMOTE/LOCAL switch is set to REMOTE.	Set the REMOTE/LOCAL switch to LOCAL.
	No cassette is loaded.	Insert a cassette.

Time data problems		
Symptom	**Cause**	**Remedy**
It is not possible to preset the time counter display to an arbitrary value. (SVO-5800/ 5800P only)	The time code generator selector is set to EXT.	Set the selector to INT.
	The time counter display selector is set to CTL.	Set the selector to TC or U-BIT.
	The REMOTE/LOCAL switch is set to REMOTE.	Set the switch to LOCAL.
Although the tape transport is operating, the time counter value does not change.	The MENU button or TC PRESET button has been pressed.	Press these buttons again to exit from menu setting mode or time code preset mode. (In either of these modes, the time counter display does not show time data.)
	The time counter display is showing user bit data.	Set the timer counter display selector to CTL or TC.

Monitor problems		
Symptom	**Cause**	**Remedy**
The picture does not appear in the EE mode. (SVO-5800/ 5800P)	The connector to which the video signal is input does not match the setting of the VIDEO IN SELECT switch.	Match the setting of the switch with the connector to which the video signal is input.
The text information does not appear on the monitor screen.	The CHARA. DISPLAY item of the DISPLAY CONTROL menu is set to OFF.	Set it to ON.
	The monitor is not connected to the MONITOR VIDEO connector.	Connect the monitor to the MONITOR VIDEO connector. (Be sure to use the MONITOR VIDEO connector when outputting the text information.)
The monitor screen is too bright.	The monitor INPUT connector 75-ohm termination switch is set to OFF, or there is not terminating device.	Set the 75-ohm termination switch to ON, or connect a terminating device.
The monitor screen is too dark.	The 75-ohm termination of the video signal input is duplicated. Ex.) The 75-ohm termination switches of both the REF VIDEO IN connector and VIDEO IN connector are set to ON (Bridge connection through the REF VIDEO IN connector).	Set the 75-ohm termination switch of the connector being used for bridge connection to OFF.
The video image is too dark when editing a composite video signal.		

Regular Checks and Maintenance

Head Cleaning

If the image becomes unclear or disappears suddenly, the video heads are dirty. Clean the heads using the T-25CL cleaning cassette (not supplied). Follow the procedure below. As improper use can damage the heads, read the manual for the cleaning cassette carefully before using it.

Cleaning procedure

Insert the cleaning cassette and press the PLAY button. Press the STOP button in about ten seconds, and eject the cleaning cassette.

Notes

- Be sure to eject the cleaning cassette after use, so that the video heads are not damaged.
- Cleaning should last about 10 seconds. If you use the cleaning cassette for more than 10 seconds, it may shorten the longevity of the heads.
- Do not rewind the cleaning cassette until it reaches the end. It can be used 4 to 5 times repeatedly by rewinding it. If you use it more, its effectiveness will be reduced.
- Do not use a wet-type cleaning cassette. It may damage the unit.

Checking the time to change video heads

If the picture is still unclear after cleaning, the video heads need to be replaced. The life of video heads is 500 to 1000 service hours. The cumulative total hours of tape transportation can be displayed on the digital hours meter in T2 mode *(page 61(E))*.

Note

Consult your Sony service representative for changing the video heads.

Checking the Time of Maintenance
— Digital Hours Meter

The digital hours meter keeps a cumulative count of the total operating time, the drum rotation time, the tape transport operating time, and the number of threading and unthreading operations. These counts can be displayed on the monitor and time counter display. Use them as guidelines for scheduling maintenance. Consult your Sony service representative about necessary periodic maintenance checks.

Digital hours meter indication modes

The digital hours meter provides the following four display modes:

T1: DRUM ROTATION-1 mode
Cumulative total of hours of drum rotation with tape threaded.

T2: DRUM ROTATION-2 mode (Resettable)
Cumulative total of hours of drum rotation with tape threaded.

C1: THREADING mode (Resettable)
Cumulative number of tape threading/unthreading operations.

C2: CASSETTE LOADING mode (Resettable)
Cumulative total of hours of tape transport operation.

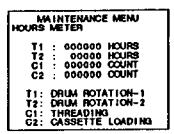
Displaying the digital hours meter

1 Hold down the ⊟ button and press the MENU button.
The maintenance menu is displayed on the monitor screen and HOURS METER is selected.

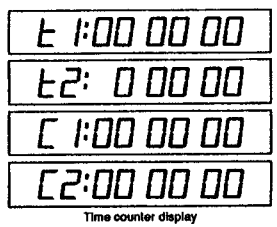
Maintenance menu display

(continued)

2 Press the ⊟ button.
All four modes are displayed on the monitor screen, and one of them is displayed on the time counter display.



Monitor screen



Time counter display

3 Press the ⊡⊡ buttons to select the display on the time counter display.

Ending the digital hours meter display
Press the MENU button.

Resetting the digital hours meter
Consult your Sony service representative.

Specifications

General

Power requirements	SVO-5800/SVP-5600: 100 to 120 V AC, 50/60Hz SVO-5800P/SVP-5600P: 220 to 240 V AC, 50/60Hz
Power consumption	SVO-5800/5800P: 55W SVP-5600/5600P: 49 W
Orientation	Horizontal
Operating temperature	+5 °C to +40 °C (+41 °F to +104 °F)
Storage temperature	–20 °C to + 60 °C (–4 °F to +140 °F)
Humidity	35 % to 80 %
Mass	Approx. 11.5 kg (25 lb 6 oz)
External dimensions	425 × 145 × 457 mm (w/h/d) (16 3/4 × 5 3/4 × 18 inches) excluding external projections

Tape transport system

Tape speed	SVO-5800/SVP-5600: 33.35 mm/s SVO-5800P/SVP-5600P: 23.39 mm/s
Maximum recording/playback time	Approx. 120 minutes (for T-120/E-120)
Fast forward/rewind time	2 minutes 30 seconds or less (for T-120/E-120)
Recommended cassettes	S-VHS or VHS tape

Video system

Video signal	SVO-5800/SVP-5600: NTSC color, EIA standard SVO-5800P/SVP-5600P: PAL color, CCIR standard
Recording method	Rotary 2-head, helical scan azimuth recording, S-VHS/VHS format
Luminance recording method	FM
Color recording method	Subcarrier low frequency conversion method
Horizontal resolution	240 lines (VHS) More than 400 lines (S-VHS)
S/N	SVO-5800/SVP-5600: 47 dB (color) (VHS) SVO-5800P/SVP-5600P: 46 dB (color) (VHS)
Recording level control	Automatic/fixed

Audio system

Number of tracks	4 (2 hi-fi channels, 2 normal audio channels)
S/N	More than 43 dB (3% distortion, normal audio, Dolby NR OFF mode)
Frequency response	50 to 12,000 Hz (normal audio) 20 to 20,000 Hz (hi-fi audio)
Dynamic range	More than 90 dB (hi-fi audio)
Recording level control	Manual/limiter, switchable (normal audio) Manual (hi-fi audio)

Specifications

Processor adjustment range

System subcarrier phase	360° p-p
System sync phase	–1 to +3 µs
Y/C delay	±200 ns (70 ns step)
Video level	±3.0 dB
Chroma level	±3.0 dB
Set up level (SVO-5800/SVP-5600)	–7 to +15 IRE
Black level (SVO-5800P/SVP-5600P)	–50 to +100 mV
Hue (SVO-5800/SVP-5600)	±30 °
Chrominance phase (SVO-5800P/SVP-5600P)	±30 °

Input connectors

Video inputs

REF VIDEO IN
BNC type × 2 (loop-through)
Black burst or 1.0 Vp-p ± 0.3 V, 75-ohm, unbalanced, sync negative (286 mV for SVO-5800, 300 mV for SVO-5800P)

VIDEO IN (SVO-5800/5800P only)
BNC type × 2 (loop-through)
Composite video, 1.0 Vp-p ± 0.3 V, 75-ohm, unbalanced, sync negative (286 mV for SVO-5800, 300 mV for SVO-5800P)

S VIDEO IN (SVO-5800/5800P only)
4-pin mini DIN × 1
Luminance signal: 1.0 Vp-p, 75-ohm, unbalanced, sync negative
Color signal: 0.286 Vp-p for SVO-5800/0.3 Vp-p for SVO-5800P, burst, 75-ohm, unbalanced

Audio inputs (SVO-5800/5800P only)

AUDIO IN (NORM/Hi-Fi) CH-1/CH-2
XLR 3-pin × 2
–6 dBm/0 dBm/+4 dBm (switching internally high impedance/600-ohm)

AUDIO IN (Hi-Fi) CH-1/CH-2
XLR 3-pin × 2
–6 dBm/0 dBm/+4 dBm (switching internally high impedance/600-ohm)

Time code input (SVO-5800/5800P only)

TIME CODE IN
BNC type × 1
0 dBu ± 6 dB(0 dBu = 1.55 Vp-p pulse), unbalanced

Output connectors

Video outputs

VIDEO OUT
BNC type × 1
Composite video, 1.0 Vp-p, 75-ohm, unbalanced, sync negative (286 mV for SVO-5800/SVP-5600, 300 mV for SVO-5800P/SVP-5600P)

MONITOR VIDEO
BNC type × 1
Composite video, 1.0 Vp-p, 75-ohm, unbalanced, sync negative (286 mV for SVO-5800/SVP-5600, 300 mV for SVO-5800P/SVP-5600P)

COMPONENT VIDEO OUT (with the optional SVBK-170 installed)
BNC type × 3
Y: 1.0 Vp-p, 75-ohm, unbalanced, sync negative
R-Y: 0.7 Vp-p, 75-ohm, unbalanced
B-Y: 0.7 Vp-p, 75-ohm, unbalanced

S VIDEO OUT
4-pin mini DIN × 2
Luminance signal: 1 Vp-p, 75-ohm, unbalanced
Color signal: 0.286 Vp-p for SVO-5800/SVP-5600, 0.3 Vp-p for SVO-5800P/SVP-5600P, burst, 75-ohm, unbalanced

Audio outputs

AUDIO OUT (NORM/Hi-Fi) CH-1/CH-2
XLR 3-pin × 2
–6 dBm/0 dBm/+4 dBm, switchable (low impedance output)

AUDIO OUT (Hi-Fi) CH-1/CH-2
XLR 3-pin × 2
–6 dBm/0 dBm/+4 dBm, switchable (low impedance output)

MONITOR AUDIO
Phono jack × 1
–5dBu (at 47 k ohm load), unbalanced (0 dBu = 0.775 Vrms)

Headphones output

HEADPHONES
Stereo phone jack × 1
Max. –18 dBu (at 8-ohm load) (0 dBu = 0.775 Vrms)

Time code output

TIME CODE OUT
BNC type × 1
0 dBu (0 dBu = 1.55 Vp-p pulse), low impedance output, unbalanced

Specifications

Remote connector

TBC REMOTE	15-pin multi × 1
REMOTE 9P	9-pin multi × 1
REMOTE	Control S (power supply type) × 1

Supplied accessories

AC power cord (1)
Operating Instructions (1)
Menu card (1)

Optional accessories

T-25CL Cleaning Cassette
SVBK-170 Component Output Board
SVRM-100 Remote Control Unit
RMM-980 Rack Mount Kit

Relative equipment

RM-450/450CE, PVE-500, BVE-910 Editing Control Unit
DFS-500/500P DME Switcher
FXE-100/100P Video Editing System
UVR-60 TBC Remote Control Unit
Sony Tektronix TSG 130 (NTSC)/131 (PAL) Video Signal Generator

Design and specifications are subject to change without notice.

SONY SVO-5800/5800P SVP-5600/5600P 3-780-425-23(1)

Menu Card

- Factory default settings are marked with a frame [ ].
- The figures in parenthesis ( ) are code numbers displayed on the time counter display of the VTR.

Menu Items	Description
OPERATIONAL FUNCTION (1000) Settings relative to the operation of the unit	
AUTO EE SELECT (1001) (SVO-5800/5800P only)	Determines the mode in which the unit outputs the video/audio input signals from other equipment when the unit received a stop command through the 9-pin REMOTE connector.
[PB(00)]	Outputs the playback signal of the tape.
EE(01)	Outputs in EE mode.
LOCAL ENABLE (1002)	Selects which of the tape transport control buttons operate when the REMOTE/LOCAL switch is set to REMOTE.
[STOP & EJECT (00)]	Only the STOP and EJECT buttons are enabled.
ALL DISABLE (01)	All of the tape transport control buttons are disabled.
PREROLL TIME (1003)	Sets the preroll time in seconds, from 0 to 15 when the REMOTE/LOCAL switch is set to REMOTE. (If it is set from the editing control unit connected to the 9-pin REMOTE connector, this setting is ignored and the editing control unit setting takes precedence.)
00 SEC (00) – [5 SEC (05)] – 15 SEC (15)	
PLAY START (1004)	Sets the timing for switching to playback mode from stop mode in frames, from 4 to 16. It minimizes the phase adjustments and reduces the preroll time when editing.
04 FRAME DELAY (04) – [05 FRAME DELAY (05)] – 16 FRAME DELAY (16)	
LTC EDIT COM. (1005) (SVO-5800/5800P only)	Sets the command for insert editing of LTC from the 9-pin REMOTE connector.
[A3 (TC) (00)]	LTC recording for only A3 command.
A2&A3 (TC) (01)	LTC recording for A2 and A3 commands.
CUE-UP SPEED (1006)	Setting of cue-up operation
[F.FWD & REW SPEED (00)]	When the cue-up point is more than a minute away, the unit fast forwards or rewinds the tape.
SHUTTLE MAX SPEED (01)	Cue-up operation always occurs in the shuttle mode.
DISPLAY CONTROL (2000)	**Settings relative to display of the monitor screen and the indicator of the unit**
CHARA. DISPLAY (2001)	Sets whether the text information is output through the MONITOR VIDEO connector or not.
OFF (00)	Does not output the text information.
[ON (01)]	Outputs the text information.
CHARA. POSITION (2002)	Sets the position of the characters to be displayed on the monitor screen. Set while watching the monitor screen.
01,01 – [11,06] – 11,11 (SVO-5800/SVP-5600) 01,01 – [13,06] – 13,11 (SVP-5800P/SVP-5600P)	The first two digits are for vertical direction, and the latter two digits for horizontal direction. As the number gets bigger, the position moves toward the bottom and the right. The factory default setting is in the bottom center of the screen.

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Menu Items	Description
CHARA. TYPE (2003)	Type of character to be output from the MONITOR VIDEO connector to the monitor screen. Set while watching the monitor screen.
[BACKGROUND (00)]	White characters on black background.
OUTLINE (01)	White characters with black outline.
DISPLAY INFO (2004)	Sets the text information to be displayed on the monitor screen. As for the time data, the data selected by the CTL/TC/U-BIT selector and the LTC/AUTO/VITC selector of the unit is displayed.
[TIME DATA & STATUS (00)]	Displays the time data and the operation status of the unit.
TIME DATA & UB (01)	Displays the time data and user bits.
TIME DATA & CTL (02)	Displays time data and CTL.
TIME DATA ONLY (03)	Displays time data only.
TIME CODE (3000) Settings relative to time code generator	
RUN MODE (3001) (SVO-5800/5800P only)	Sets run mode of the time code generator.
[FREE RUN (00)]	Time code generator runs all the time.
REC RUN (01)	Time code generator runs only while recording.
Note: Set to FREE RUN (00) when editing.	
DF MODE (3002)(SVO-5800/SVP-5600 only)	Selects the drop-frame mode of the time code generator and CTL counter (CTL counter only for SVP-5600).
[OFF (NDF) (00)]	Non-drop-frame mode. Set to this when the number of frames is important such as in computer graphics.
ON (DF) (01)	Drop-frame mode.
VITC REC MODE (3003) (SVO-5800/5800P only)	Sets whether to record VITC or not.
OFF (00)	Does not record VITC.
[ON (01)]	Records VITC.
UB BINARY GP. (3004) (SVO-5800/5800P only)	Selects the user bit binary group flag of the time code generator.
[NOT SPECIFIED (00)]	Character set is not specified.
ISO CHARACTER (01)	8-bit character which conforms to ISO 646 and ISO 2022
UNASSIGNED 1 (10)	Not specified.
UNASSIGNED 2 (11)	Not specified.
Note: When the INT/EXT switch is set to EXT, the user bit binary group flag setting follows the setting in the time code selected by the EXT REGEN TC (3008) on next page.	
PHASE CORR. (3005) (SVO-5800/5800P only)	Selects whether the phase (LTC) of the time code generator is corrected or not.
[OFF (00)]	Phase is not corrected.
ON (01)	Phase is corrected.
INT TC MODE (3006) (SVO-5800/5800P only)	Selects the mode of the internal time code generator when the INT/EXT switch is set to INT.
[PRESET (00)]	The time code and user bit follow the values preset on this unit or the externally preset values through the 9-pin REMOTE connector.
TC & UB REGEN (01)	The time code and user bit are synchronized with the data recorded on the tape.
TC REGEN (02)	The time code is synchronized with the data recorded on the tape, and the user bit follows the value preset on the unit or the externally preset values through the 9-pin REMOTE connector.
UB REGEN (03)	The user bit is synchronized with the data recorded on the tape, and the time code follows the value preset on the unit or the externally preset values through the 9-pin REMOTE connector.
Note: Be sure to set to PRESET(00) when editing.	

Menu items	Description
EXT TC MODE (3007) (SVO-5800/5800P only)	Selects the mode of the internal time code generator when the INT/EXT switch is set to EXT.
PRESET (00)	Records the LTC input through the TIME CODE IN connector.
[TC & UB REGEN (01)]	The time code and user bit are synchronized with the time code selected by the EXT REGEN TC below.
TC REGEN (02)	The time code is synchronized with the time code selected by the EXT REGEN TC below, and the user bit data with the value preset on this unit.
UB REGEN (03)	The user bit follows the time code selected by the EXT REGEN TC below, and the time code data with the value preset on this unit.
EXT REGEN TC (3008) (SVO-5800/5800P only)	Selects the external time code to synchronize the internal time code generator.
[LTC (00)]	Synchronizes with the LTC input through the TIME CODE IN connector.
VITC (01)	Synchronizes with the VITC input through the VIDEO IN connector.
VITC POSI. 1 (3009) (SVO-5800/5800P only)	Selects the insertion line of the VITC signal between 10 and 21 (SVO-5800) or 7 and 22 (SVO-5800P).
10 LINE (10) - [18 LINE (18)] - 21 LINE (21)(SVO-5800) 7 LINE (07) - [19 LINE (19)] - 22 LINE (22)(SVO-5800P)	
VITC POSI. 2 (3010) (SVO-5800/5800P only)	Selects the insertion line of the VITC signal between 10 and 21 (SVO-5800) or 7 and 22 (SVO-5800P).
10 LINE (10) - [18 LINE (18)] - 21 LINE (21)(SVO-5800) 7 LINE (07) - [21 LINE (21)] - 22 LINE (22)(SVO-5800P)	
SERVO CONTROL (4000) (SVO-5800/5800P only) Settings relative to servo control	
FRAMING (4001) (SVO-5800/5800P only)	Selects whether framing servo is controlled or not.
OFF (00)	Framing servo is not controlled. Set to this position when editing tape without frame control, such as tape recorded with a home VTR.
[ON (01)]	Framing servo is controlled. Set to this position in ordinary use.
COLOR (02)	Color framing servo is controlled.
COLOR FRAMING (4002) (SVP-5600P only)	Selects whether color framing servo for the signal input through REF VIDEO IN is controlled or not.
[OFF (00)]	Color framing servo is not controlled.
ON (01)	Color framing servo is controlled.
SYNC SELECT (4003) (SVO-5800/5800P only)	Selects the reference signal for servo control.
EXT (00)	Use the signal input through REF VIDEO IN as a reference.
[AUTO (01)]	Change the reference signal according to the mode of the VTR.
AUTO H PHASE (4004) (SVO-5800/5800P only)	Select the phase of the video signal to be recorded on the tape. It prevents picture instability of the editing point at the time of interchangeable editing due to the difference in head changing position.
[OFF (00)]	Set the phase to 6.5H. Set to this position when recording frame by frame, such as in animation.
ON (01)	Align the phase with that of the tape to be edited. Set to this position in ordinary use.
VIDEO CONTROL (5000) Settings relative to video signal control	
S-VHS REC MODE (5001) (SVO-5800/5800P only)	Selects the recording format.
OFF (00)	Records in VHS format regardless of type of cassette.
ON (01)	Records in S-VHS format on S-VHS cassette, and VHS format on VHS cassette.
[AUTO (02)]	Automatically selects S-VHS or VHS according to the previously recorded format of the tape, when editing on S-VHS cassette.

Menu items	Description
VIDEO AGC (5002) (SVO-5800/5800P only)	Selects whether the video level is automatically adjusted or not during recording.
OFF (00)	Video level is not automatically adjusted.
[ON (01)]	Video level is automatically adjusted.
EDIT MODE (5003)	Selects the picture quality according to the unit's operating mode.
[OFF (00)]	Set to this position for normal playback.
ON (01)	Set to this position when editing.
YNR (5004)	Selects the level of the digital luminance noise reduction circuit.
OFF (00)	Does not activate.
LEVEL 1 (01)	Weak level
[LEVEL 2 (02)]	Medium level
LEVEL 3 (03)	Strong level
Note After-image may be visible if you dub on a tape repeatedly with YNR set to a position other than OFF (00).	
CNR (5005)	Selects the level of the digital chroma noise reduction circuit.
OFF (00)	Does not activate.
LEVEL 1 (01)	Weak level
LEVEL 2 (02)	Medium level
[LEVEL 3 (03)]	Strong level
Note After-image may be visible if you dub on a tape repeatedly with CNR set to a position other than OFF (00).	
Y ENHANCER (5006)	Selects whether the digital luminance enhancer circuit is activated or not.
OFF (00)	Digital luminance enhancer circuit is not activated.
[ON (01)]	Digital luminance enhancer circuit is activated.
FREEZE FIELD (5007)	Selects which image to freeze when the FREEZE command is received during normal playback.
[COMMAND FIELD (00)]	Freezes the image of the same field when the command is received.
1ST FIELD (01)	Freezes the image of the first field at any time.
2ND FIELD (02)	Freezes the image of the second field at any time.
BLANKING (5008) (SVO-5800/5800P only)	Determines whether or not to mask the data inserted in the V blank during recording.
OFF (00)	Blanking is not done.
[ON (01)]	Blanking is done for the lines between 10 and 21 (all lines) (SVO-5800) or 7 and 22 (all lines) (SVO-5800P) of V-BLANK.
SWP MASKING (5009)	Determines whether or not to do masking on the video signal switching portion during playback with the TBC set to ON.
[OFF (00)]	Masking is not done.
ON (01)	Masking is done.
AUDIO CONTROL (6000) Settings relative to audio signal control	
LINE OUT (6001)	Selects the signal to be output from the AUDIO OUT (NORM/Hi-Fi) connector.
HI-FI (00)	Outputs the audio signal of hi-fi recording.
[NORMAL (01)]	Outputs the audio signal of normal audio recording.
HI-FI REC (6002) (SVO-5800/5800P only)	Determines whether the audio signal is hi-fi recording or not.
OFF (00)	Not hi-fi recording
[ON (01)]	Hi-fi recording
HI-FI REC SEL (6003) (SVO-5800/5800P only)	Selects the audio signal for hi-fi recording.
HI-FI INPUT (00)	Records the signal to be input through the AUDIO IN (Hi-Fi) connector.
[NORMAL INPUT (01)]	Records the signal to be input through the AUDIO IN (NORM/Hi-Fi) connector.
DOLBY NR (6004)	Determines whether the Dolby noise reduction circuit is activated for normal audio or not.
[OFF (00)]	Dolby noise reduction circuit is not activated.
ON (01)	Dolby noise reduction circuit is activated.

Menu items	Description
LIMITER (6005) (SVO-5800/5800P only)	Determines whether the limiter circuit is activated for normal audio or not.
[OFF (00)]	Limiter circuit is not activated.
ON (01)	Limiter circuit is activated.
NORMAL CH-2 (6006)	Selects the use of channel 2 for normal audio recording.
[AUDIO (00)]	Used for audio recording.
TIME CODE (01)	Used for time code recording.
Notes: • In AUDIO position, time code noise is output through the audio output and monitor output of channel 2 of the normal audio track if you play back a tape on which time code (LTC) is recorded in channel 2. • In TIME CODE position, the sound recorded in channel 2 of the normal audio track cannot be output or monitored if you play back a tape on which the sound is recorded in channel 2.	
NORMAL CH-1 REC (6007) (SVO-5800/5800P only)	Selects the audio signal to be recorded on channel 1 for normal recording.
[CH-1 ONLY (00)]	Records the signal input through CH-1 of the AUDIO IN (NORM/Hi-Fi) connector.
CH-1/CH-2 MIX (01)	Records the mixed signals input through CH-1 and CH-2 of the AUDIO IN (NORM/Hi-Fi) connector.
TAPE PROTECTION (7000)	**Settings relative to tape protection**
STILL TIMER (7001)	Selects the time from the playback/record pause mode (pause/freeze picture) to the mode set by PROTECT MODE.
[5 MIN (00)], 4 MIN (01), 3 MIN (02), 2 MIN (03), 1 MIN (04), 50 SEC (05), 40 SEC (06), 30 SEC (07), 20 SEC (08), 10 SEC (09), 5 SEC (10), 0.5 SEC (11)	
PROTECT MODE (7002)	Selects the tape protect mode, which shifts after the time set by the STILL TIMER passes.
[STEP FWD (00)]	Tape is step-fed in the forward direction at 1/5 speed for about 1 second.
STOP (01)	Enters the stop mode.
TENSION RELEASE (02)	Enters the tension release mode.
MENU GRADE (9001)	**Selects the menu to be displayed**
[BASIC (00)]	Displays only the basic settings.
ENHANCED (01)	Displays the basic settings and extended settings.
TC PRESET (8000)	**Settings relative to preset of time code value**
TCG PRESET (8001) (SVO-5800/5800P only)	Initial value setting menu for time code
UGB PRESET (8002) (SVO-5800/5800P only)	Initial value setting menu for user bit
CUE-UP POINT PRESET (8003)	Selects the time code of the cue-up point.

Setting of the Editing Control Unit

Your editing control unit may be automatically set for the VTR, depending on the version of the unit. Consult your Sony service representative.

FXE-100/100P Video Editing System

Set the VTR constants in the set-up menu as follows:

Byte	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
SVO-5800	10	20	00	96	09	09	05	8A	0A	05	FA	02	80	5A	0A
SVP-5600	10	21	00	96	09	09	05	8A	0A	05	FA	02	80	5A	0A
SVO-5800P	11	20	00	7D	0A	0A	05	8A	0A	05	F7	00	81	32	0F
SVP-5600P	11	21	00	7D	0A	0A	05	8A	0A	05	F7	00	81	32	0F

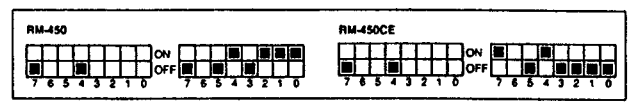
BVE-910 Editing Control Unit

Set the VTR constants in the set-up menu as follows:

Byte	BLOCK-1								BLOCK-2						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
SVO-5800	10	20	00	96	09	09	05	8A	0A	05	FF	00	80	5A	0A
SVP-5600	10	21	00	96	09	09	05	8A	0A	05	FF	00	80	5A	0A
SVO-5800P	11	20	00	7D	0A	0A	05	8A	0A	05	FF	00	81	32	0F
SVP-5600P	11	21	00	7D	0A	0A	05	8A	0A	05	FF	00	81	32	0F

RM-450/450CE Editing Control Unit

Set the SYSTEM PRESET switch as follows:



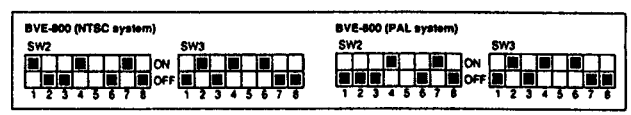
PVE-500 Editing Control Unit

Set the set-up menu as follows:

Item No.	SETUP-11	SETUP-12	SETUP-13	SETUP-14
SVO-5800/SVP-5600	7F	LEARN	LEARN	LEARN
SVO-5800P/SVP-5600P	8F	LEARN	LEARN	LEARN

BVE-800 Editing Control Unit

Set the SYSTEM PRESET switch as follows:



Note: Set No. 6 of SW2 to ON in CTL mode or when you use a tape on which the time code is not recorded continuously.

Sony Corporation Printed in Japan

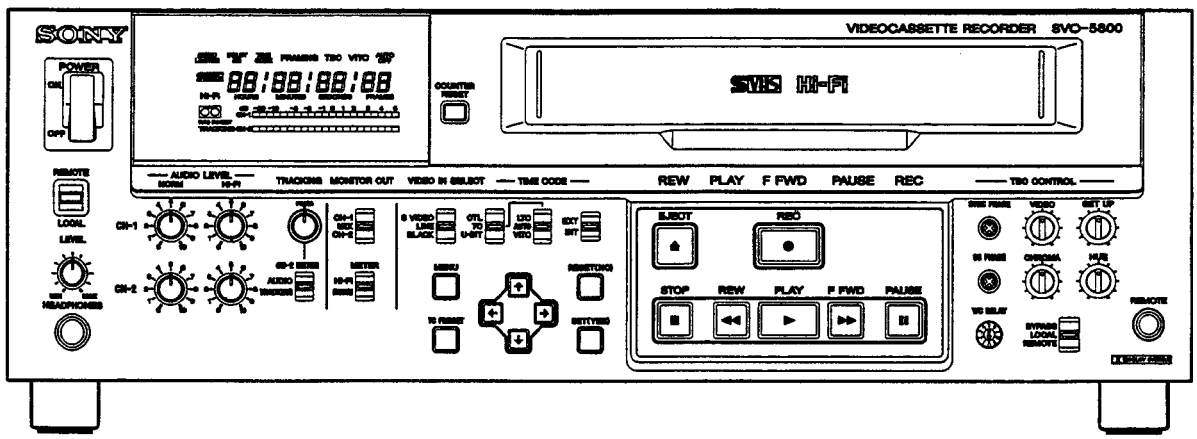
SECTION 2
SERVICE OVERVIEW

2-1. FUNCTION COMPARISON

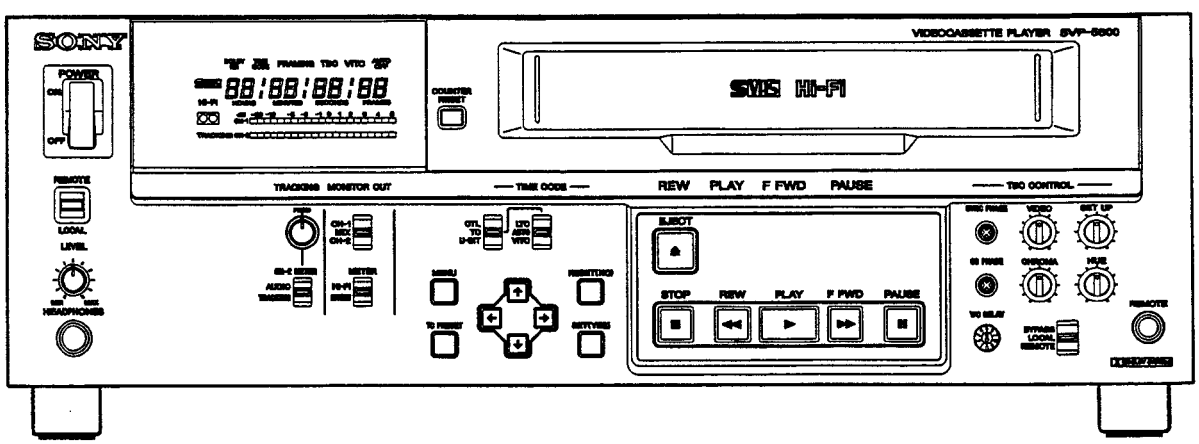
SVO-5800 is a videocassette recorder.
SVP-5600 is a videocassette player.

Front panels of these units are as follows:

· SVO-5800

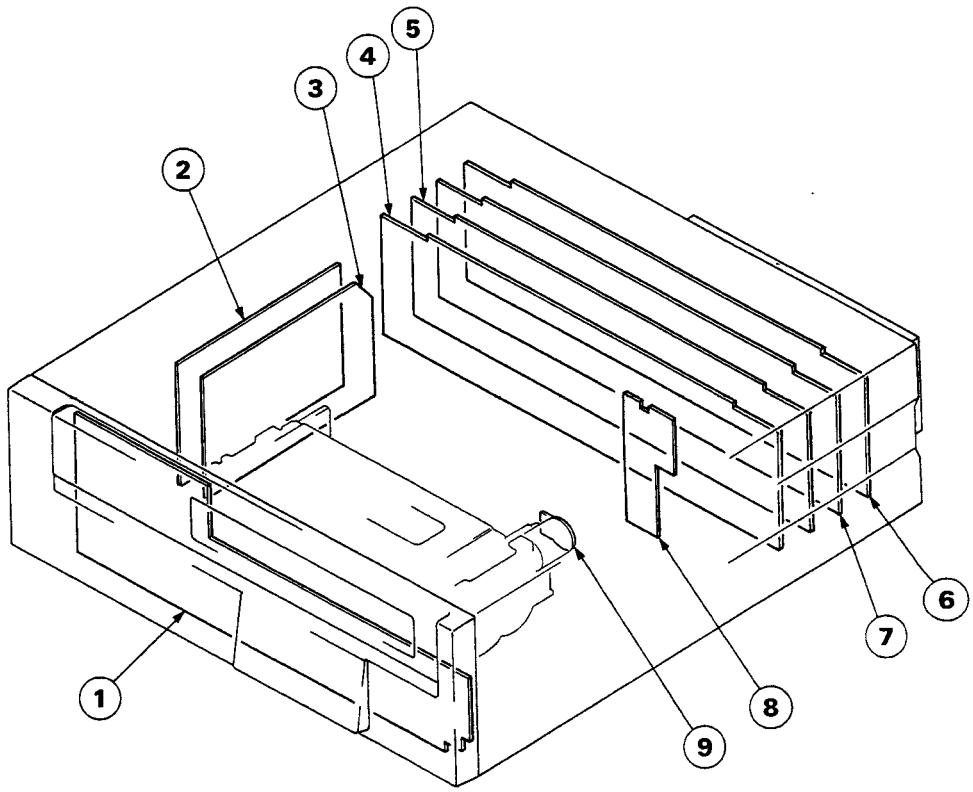


· SVP-5600

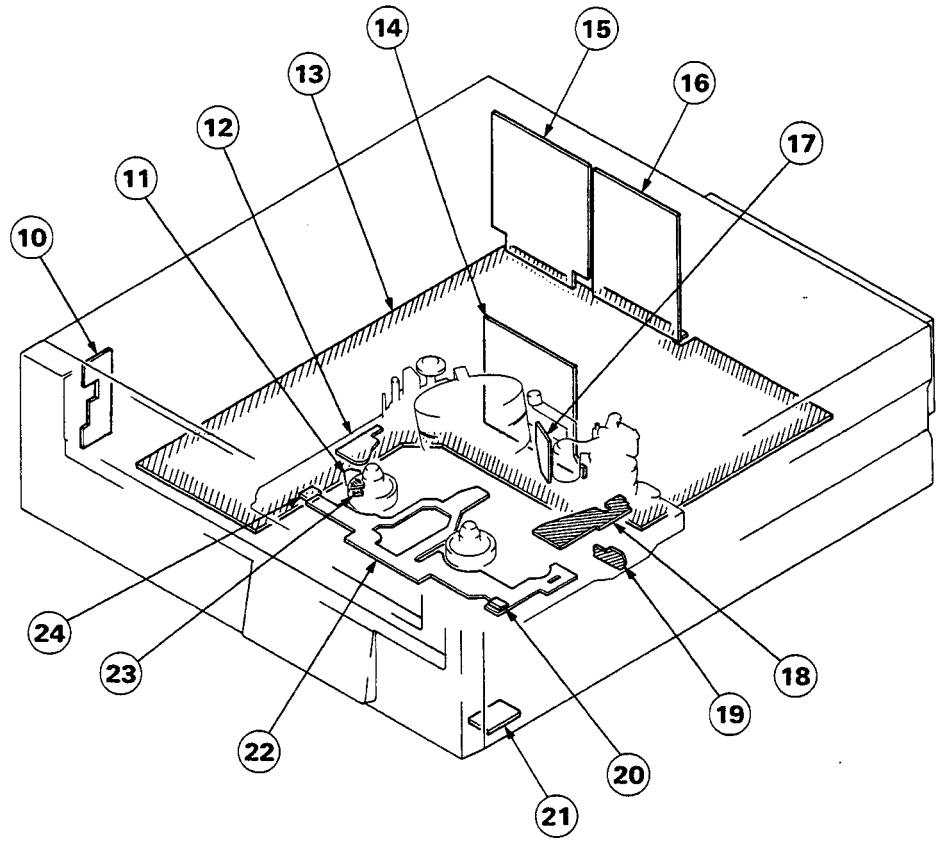


2-2. LOCATION OF MAIN PARTS

2-2-1. Location of the Printed Circuit Boards



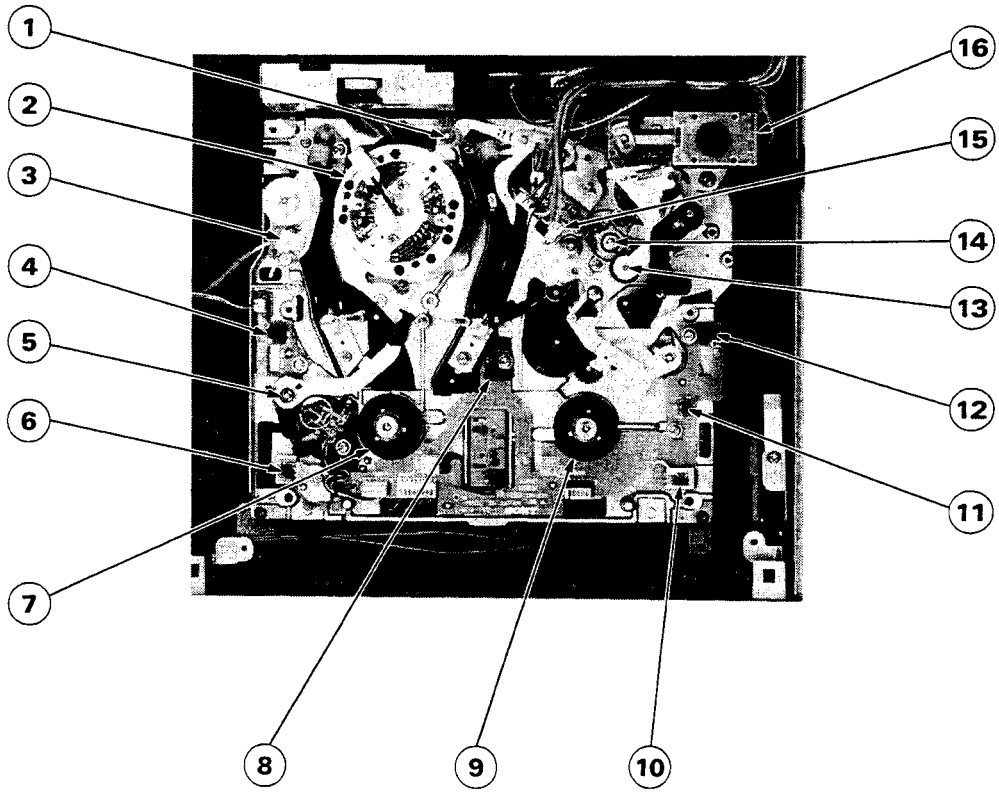
	SVO-5800	SVP-5600
①	KY-303 board	KY-303B board
②	DR-266 board	
③	DR-265 board	
④	VO-47 board	VO-47B board
⑤	SS-58 board	SS-58B board
⑥	VA-148 board	VA-148B board
⑦	TBC-30 board	
⑧	CN-1053 board	
⑨	CM-14 board (Cassette Compartment)	



	SVO-5800	SVP-5600
⑩	HP-64 board	
⑪	SE-230 board	
⑫	SE-224 board	
⑬	MB-535 board	
⑭	RP-74 board	RP-74B board
⑮	CP-247 board	CP-247B board
⑯	CP-246 board	CP-246B board
⑰	AH-40 board	AH-28 board
⑱	PTC-73A board	
⑲	LD-35 board	
⑳	SW-673 board	
㉑	RM-145 board	
㉒	HN-198A board	
㉓	LE-131 board	
㉔	SW-668 board	

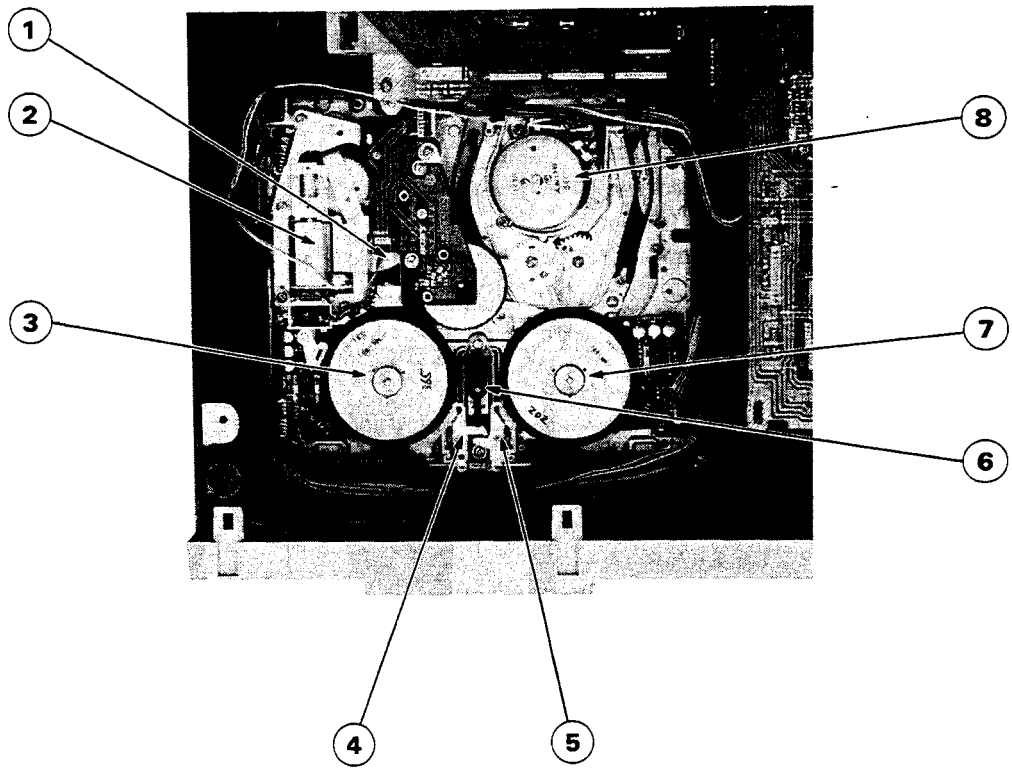
2-2-2. Location of the Main Mechanical Parts/Components

<TOP VIEW>



① Cleaning Roller
② Drum Assembly
③ Full Erase Head
④ Tape End Sensor
⑤ Tension Regulator
⑥ Miss REC Switch
⑦ Supply Reel Table
⑧ Tape Top/End LED
⑨ Take-up Reel Table
⑩ S-VHS cassette Detection Switch
⑪ Cassette Down Switch
⑫ Tape Top Sensor
⑬ Pinch Roller
⑭ Capstan Shaft
⑮ AUDIO/CTL Head
⑯ Pinch Solenoid

<BOTTOM VIEW>



① Capstan Motor
② Cam Motor Assembly
③ Take-up Reel Motor
④ T Brake Arm
⑤ S Brake Arm
⑥ Brake Solenoid
⑦ Supply Reel Motor
⑧ Drum Assembly

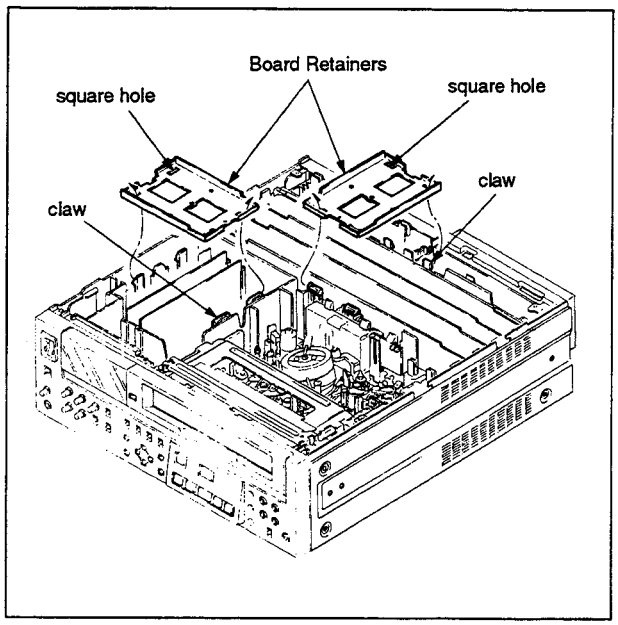
2-3. PRINTED CIRCUIT BOARDS

SYSTEM	BOARD	CIRCUIT FUNCTION
VIDEO	RP-74 <SVO-5800>	Video & AFM REC/PB Head Amp
	RP-74B<SVP-5600>	Video & AFM PB Head Amp
	VA-148<SVO-5800>	Video Process & Output Amp
	VA-148B<SVP-5600>	Video Process & Output Amp
	VO-47 <SVO-5800>	Video Mod/Demod & Chroma Process
	VO-47B<SVP-5600>	Video Demod & Chroma Process
	TBC-30	Time Base Corrector & Digital Noise Reducer
AUDIO	VA-148<SVO-5800>	FM Audio Process/Normal Audio Process/LTC Amp
	VA-148B<SVP-5600>	FM Audio Process/Normal Audio Process/LTC Amp
	AH-40<SVO-5800>	Audio/Erase/CTL Head
	AH-28<SVP-5600>	Audio/CTL Head
SERVO/ SYSTEM CONTROL	SS-58<SVO-5800>	System & Servo Control/Timecode Generator & Reader
	SS-58B<SVP-5600>	System & Servo Control/Timecode Generator & Reader
	KY-303<SVO-5800>	Function Key/LED/Switch
	KY-303B<SVP-5600>	Function Key/LED/Switch
	DR-265	Drum & Capstan Driver & FG Amp Brake Solenoid Driver
	DR-266	Reel Driver & Servo Control FG Amp Tension Sensor Amp
	CM-14	Cassette Compartment Motor
	LD-35	Loading Motor
	LE-131	Tension Regulator LED
	PTC-73A	CAM Mode Detect
	HN-198A	Connection
	SW-668	Miss REC SW
	SW-673	VHS Cassete SW
	SE-224	Tape End Sensor
	SE-230	Tension Regulator CDS Detect
	CN-1053	Connection
CONNECTOR	MB-535	Mother Board
	RM-145	Control-S Remote Control Jack
	HP-64	Headphone Jack/Level/Control & Remote SW
	CP-246<SVO-5800>	Video & Timecode Input/Output Connector
	CP-246B<SVP-5600>	Video & Timecode Output Connector
	CP-247<SVO-5800>	Audio Input/Output Connector
	CP-247B<SVP-5600>	Audio Output Connector

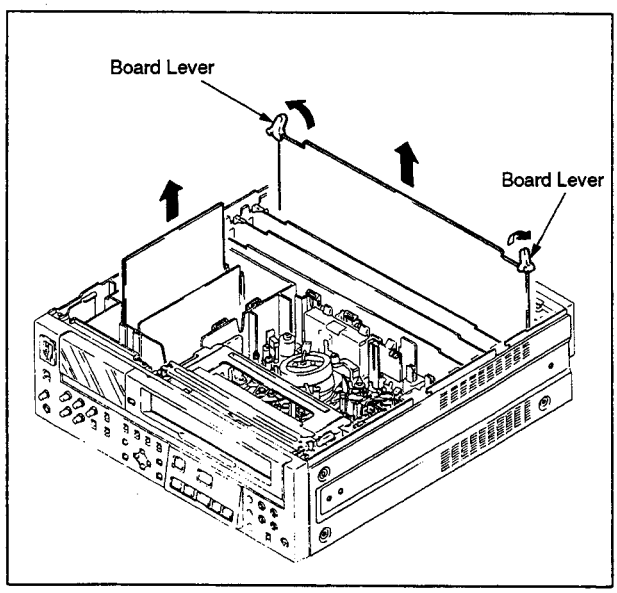
2-5. THE PRINTED CIRCUIT BOARD REMOVAL

2-5-1. Card board removal

1. Remove the top panel.(Refer to sub-section 2-4)
2. Disengage the claws of the chassis from the square holes of the board retainer.



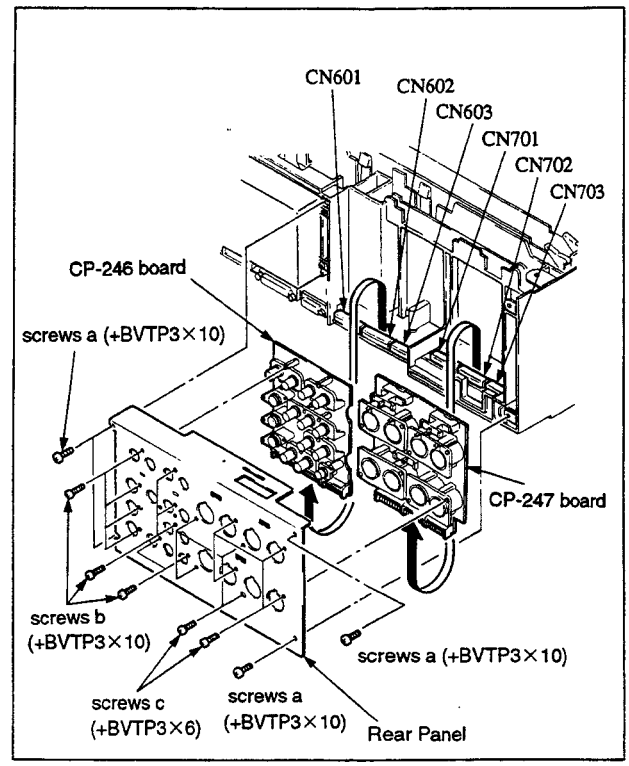
3. Pull up the board levers in the direction of the arrow, then lift up the board.
   When the board levers are not installed on the board, lift up the board as it is.



<Note on installation>
Insert the board along the board guide rails, then push it firmly until it engages with the connector on the mother board.

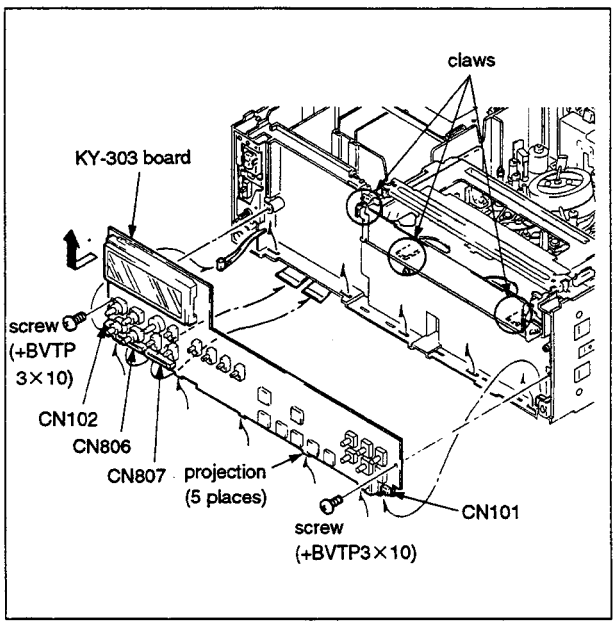
2-5-2. CP-246/247 board removal

1. Remove the top panel (Refer to sub-section 2-4).
2. Remove the four screws a.
3. Llft up the rear panel assembly, and disconnect the six connectors (CN601,CN602,CN603,CN701,CN702,CN703).
4. Remove the nine screws b (SVP-5600 :seven screws) on the CP-246 board, and remove the eight screws c (SVP-5600 :four screws) on the CP-247 board.



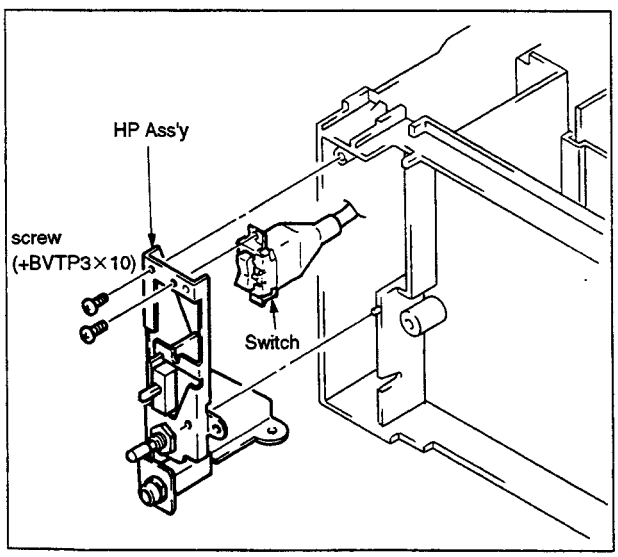
2-5-3. KY-303 board removal

1. Remove the front panel. (Refer to sub-section 2-4)
2. Disconnect the three connectors (CN102,CN806,CN807) on the KY-303 board.
3. Remove the two screws.
4. Disengage the KY-303 board from the claws of the chassis. Disengage the projection of the KY-303 board from the square holes of the chassis, and remove the KY-303 board in the direction of the arrow taking care of the connector (CN101).



2-5-4. HP-64 board removal

1. Remove the front panel. (Refer to sub-section 2-4)
2. Remove the KY-303 board. (Refer to sub-section 2-5-3)
3. Remove the two screws, and pull out the HP-64 assembly.

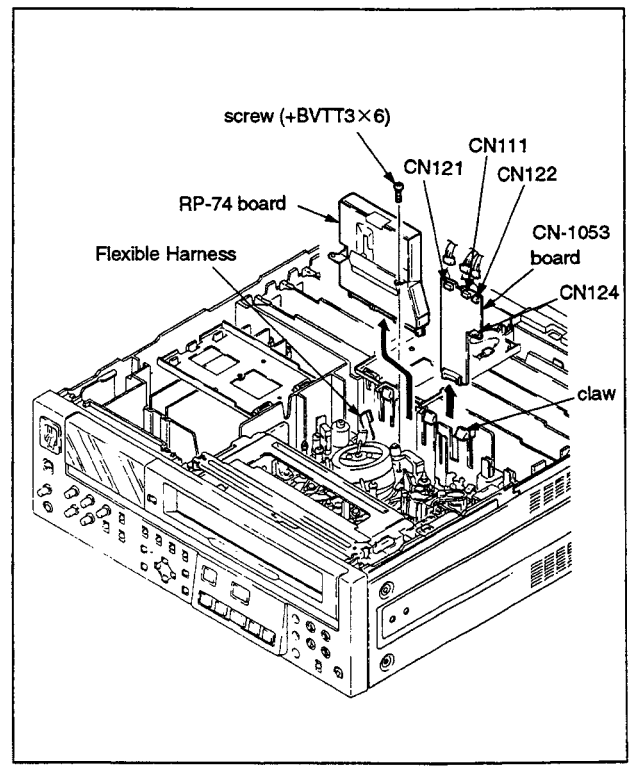


2-5-5. CN-1053 board removal

1. Remove the top panel. (Refer to sub-section 2-4)
2. Diconnect the four connectors (CN111,CN121,CN122, CN124) on the CN-1053 board.
3. Disengage the CN-1053 board from the claws of the chassis. Lift up the CN-1053 board.

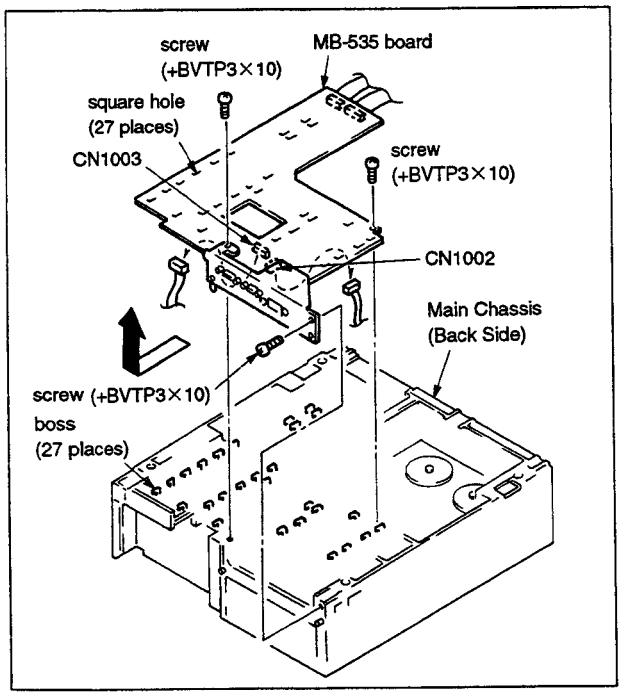
2-5-6. RP-74 board removal

1. Remove the top panel. (Refer to sub-section 2-4)
2. Disconnect the flexible harness of the RP-74 board.
3. Remove the one screw.
4. Disengage the RP-74 board from the claws of the chassis. Lift up the RP-74 board.

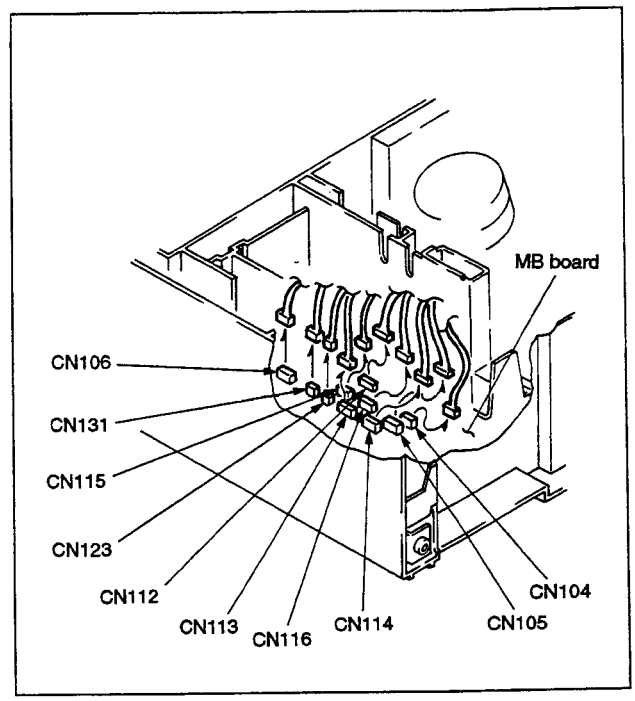


2-5-7. MB-535 board removal

1. Remove the top panel and U case. (Refer to sub-section 2-4)
2. Remove the two board retainers, and remove the six card boards(VA-148,TBC-30,SS-58,VO-47,DR-266,DR-265). (Refer to sub-section 2-5-1)
3. Disconnect the two connectors (CN806,CN807) on the KY-303 board.
4. Remove the CP-246/247 boards. (Refer to sub-section 2-5-2)
5. Remove the CN-1053 board. (Refer to sub-section 2-5-5)
6. Remove the RP-74 board. (Refer to sub-section 2-5-6)
7. Remove the switching regulator. (Refer to sub-section 2-9)
8. Remove the three screws.
9. Move the MB-535 board in the direction of the arrow, and disengage the square holes of the MB-535 board from the bosses of the chassis. Disconnect the two connectors (CN1002,CN1003).



10. Disconnect the ten connectors (CN104,CN105,CN106, CN113,CN114,CN115,CN116,CN123,CN131,CN1002) on the MB-535 board.

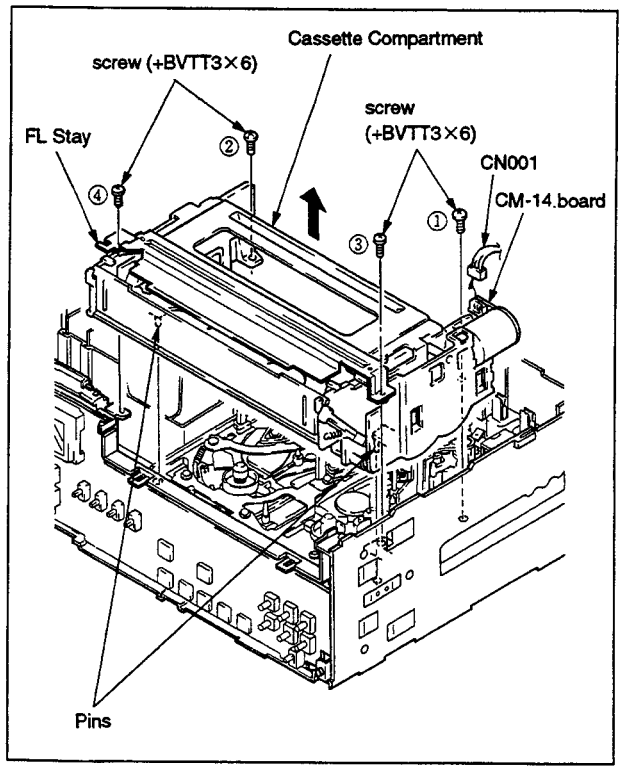


2-6. CASSETTE COMPARTMENT (FL Ass'y) REMOVAL

1. Remove the top panel, the U case and the front panel. (Refer to sub-section.2-4)
2. Disconnect the connector (CN001) on the CM-14 board.
3. Remove the four screws, and remove the FL stay and the cassette compartment in the direction of the arrow.

<Note on installation>

1) Align the two pins of the cassette compartment to the holes of the base plate.
2) Install the FL stay on the cassette compartment.
3) Fix the screws in order ① to ④.



2-7. CASSETTE TAPE REMOVAL WHEN NORMAL EJECTION IS NOT POSSIBLE

1. Remove the top panel and U case. (Refer to Sec.2-4)
2. Remove the screw, and remove the cam motor ass'y from the drive gear ass'y.
3. Rotate the worm wheel of the drive gear ass'y manually in the direction of the arrow until the tape threading guides are in the unthreading end state.
4. Rotate the S side reel motor by hand in the direction of the arrow so that the tape is taken up into the cassette. (Fig.1.)
5. Rotate the loading motor of the cassette compartment ass'y manually in the direction of arrow, and eject the cassette. (Fig.2.)

CAM motor Ass'y Installation

1) Fit the groove of the cam motor ass'y over the 'a' face of the drive gear ass'y.
2) Align the hole in the cam motor ass'y with the projection on the drive gear ass'y.
3) Set the cam motor parallel to the 'b' face of the drive gear ass'y, then screw is fixed. (Fig.3.)

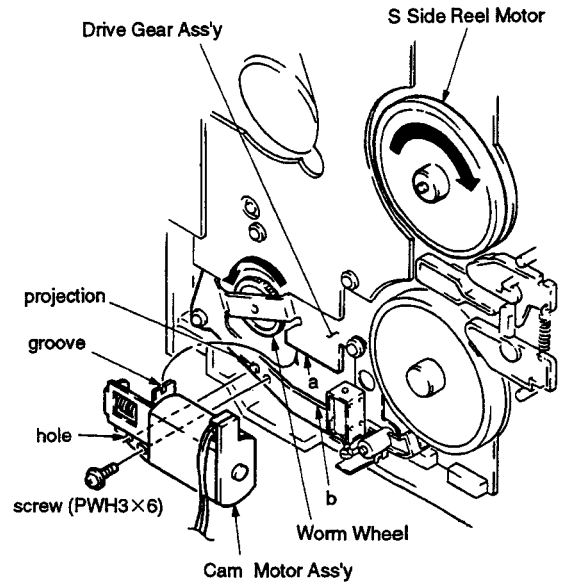


Fig.1.

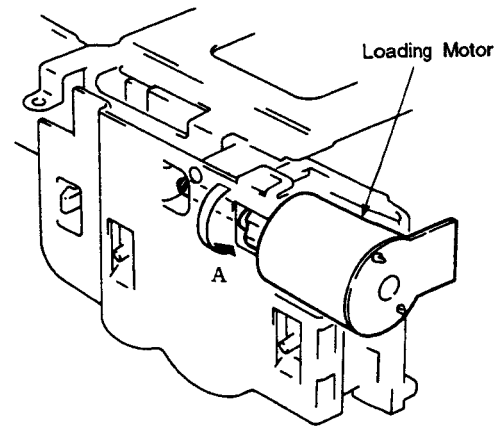


Fig.2.

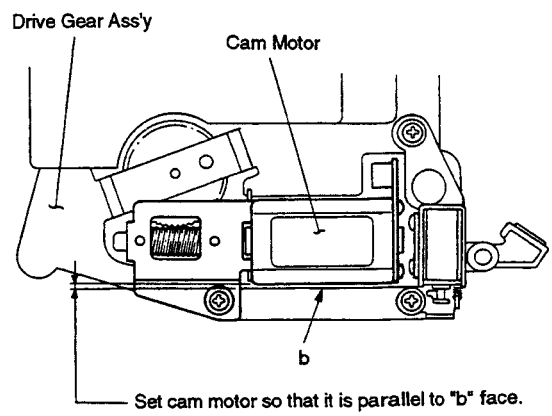


Fig.3.

2-8. OPERATION OF THE VTR WITHOUT THE CASSETTE COMPARTMENT ASS'Y OR THE CASSETTE TAPE

1. Remove the cassette compartment. (Refer to Sec.2-6)
2. Turn on No.1 switch of DIP switch S101/SS-58 board (C-1). (This stops tape top/end stop sensor function.) (Fig.1.)
3. Push down the CASSETTE DOWN switch with tape and etc. (Fig.2.)
4. Turn on the POWER.

In this condition, the VTR can be operated on the front panel and with remote controller (RM-V200, RM-V100,SVRM-100 etc.)

Note : Be sure to turn off No.1 switch after operation.

[Operating the VTR with the cassette compartment removed and a cassette tape loaded.]

- Be sure to turn off No.1 switch of DIP switch S101. (If the DIP switch is turned on, the tape will not stop at the tape top/end, and it is possible to damage the head tip and to deform the tape guide.)

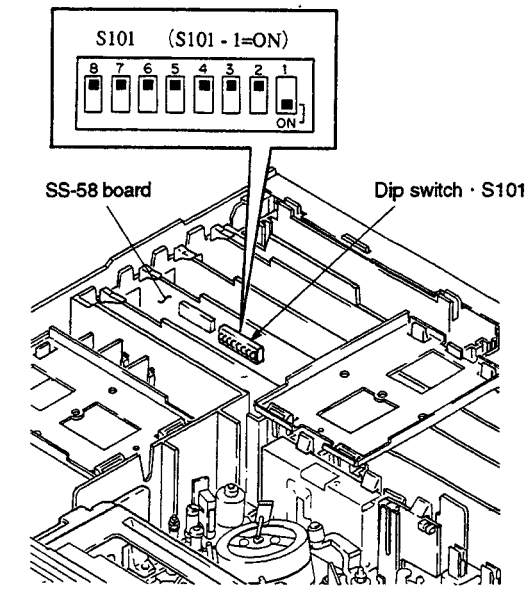


Fig.1.

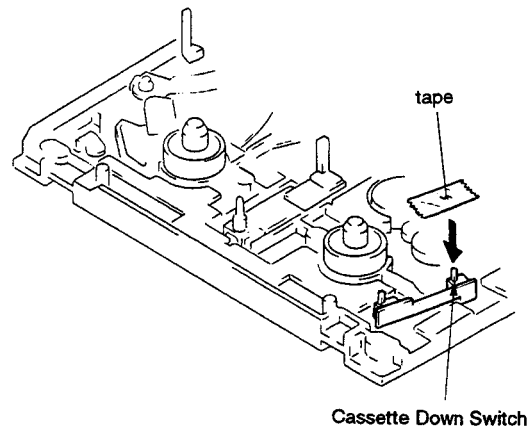
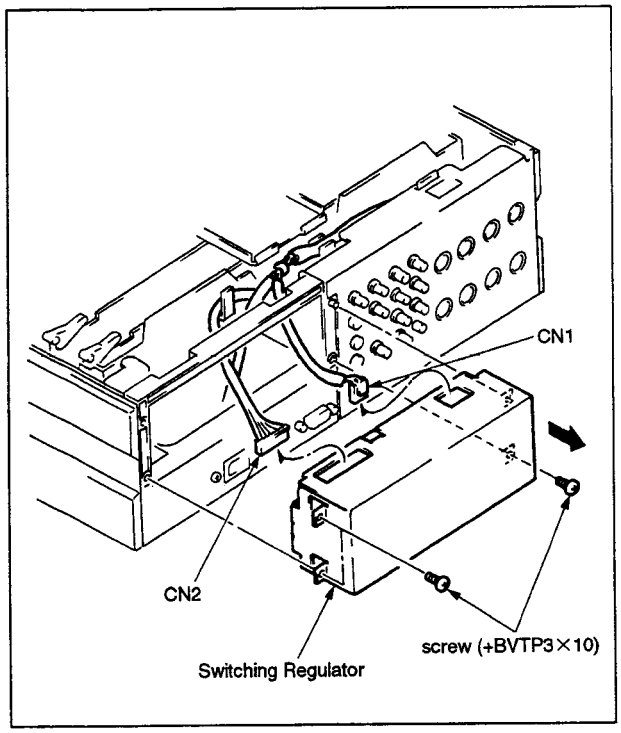


Fig.2.

2-9. Switching regulator removal

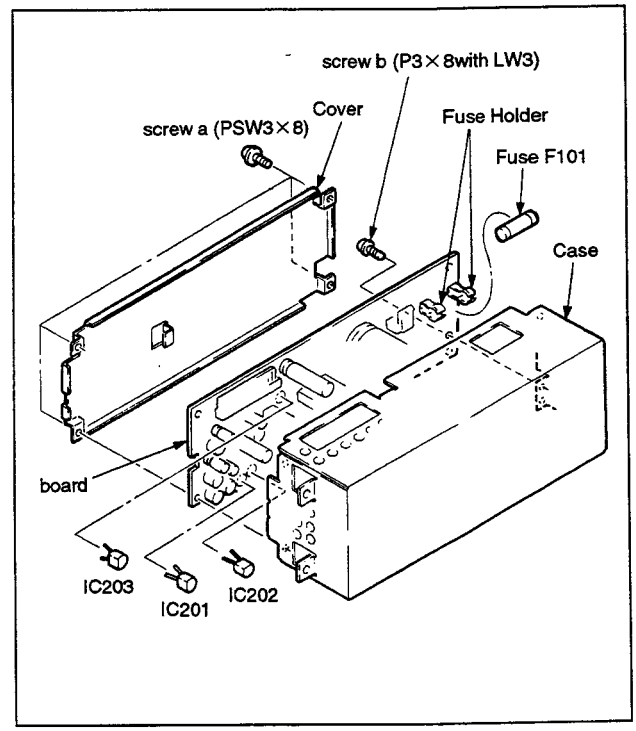
1. Remove the top panel. (Refer to sub-section 2-4.)
2. Disconnect the two connectors (CN1,CN2).
3. Remove the three screws.
4. Pull out the switching regulator in the direction of the arrow.



2-10. Fuse and IC link replacement (Inside the switching regulator)

1. Remove the switching regulator from the unit. (Refer to sub-section 2-9)
2. Remove the four screws a, and remove the cover.
3. Remove the screw b, and pull out the board from the case.
4. Replace the fuse and IC link.

Fuse	SONY P/N : 1-532-744-11 (2.5A,125V)
IC201	SONY P/N : 1-532-685-00
IC202,IC203	SONY P/N : 1-532-679-00



2-11. RACK MOUNTING

This unit can be mounted in a 19-inch standard rack. It is recommended to use the following kit.

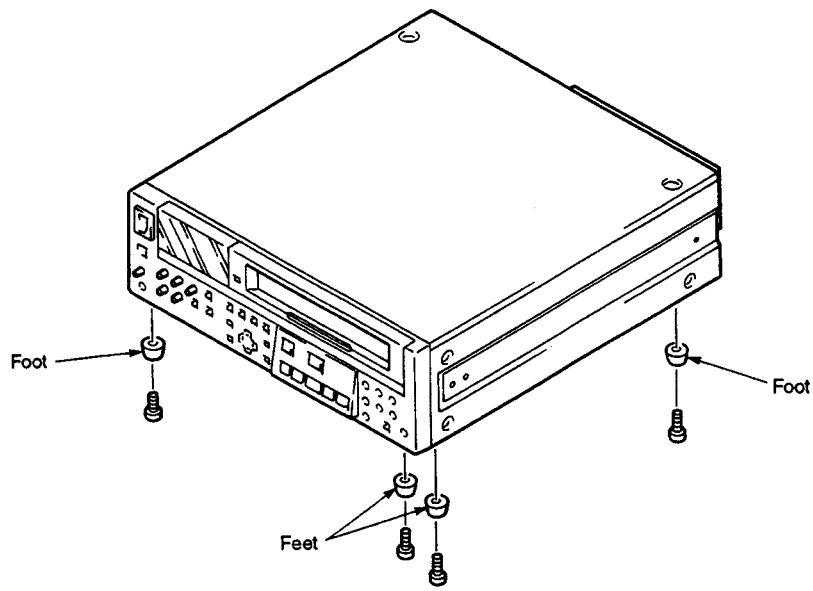
SONY Rack Mount Metal : RMM-980 (Optional Accessory)

- Component parts

slide rail	×2
handle	×2
L-shaped wrench	×1
hexagon socket bolt (4×10)	×8
W4 middle	×8
plate nut	×4
screw (B4×8)	×4
(B4×16)	×4
(RK5×14)	×4
trapezoid type washer	×4

2-11-1. In Case of Use Kit RMM-980

1. Remove the four screws on the four feet on the bottom panel.
   If the unit is mounted in the rack with the feet attached, they will contact the lower other unit in the rack.



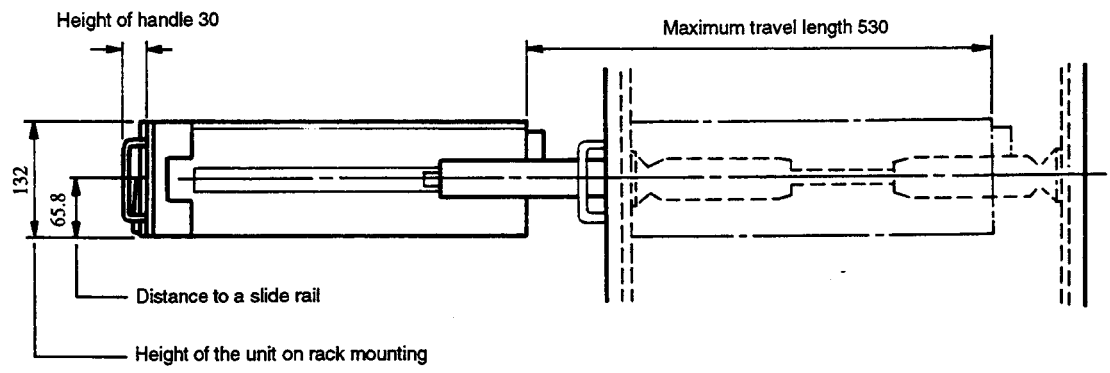
2. Install slide rails and handles.

   As to mounting method of the rack mounting kit, refer to OPERATING INSTRUCTIONS packed with the rack mount metal RMM-980.

Note on rack mounting :

- When several units are mounted in a rack, it is recommended to install a fan for ventilation. Good air circulation is essential to prevent internal heat build-up in a rack (10℃ to 35℃ must be met for all units).
- Never remove a top panel and U case during rack mounting.
- Be sure to secure the rack to the floor to avoid accidents when a unit is pulled out.

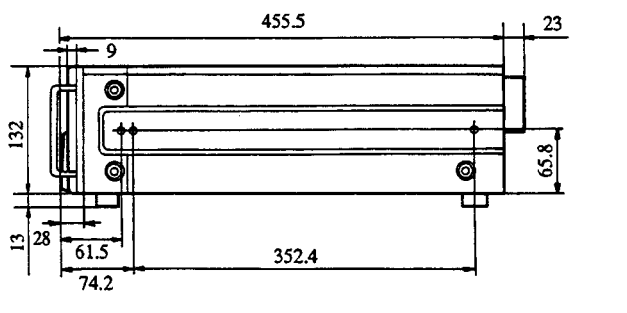
· Maximum travel lenght of the RMM-980 is as follows.



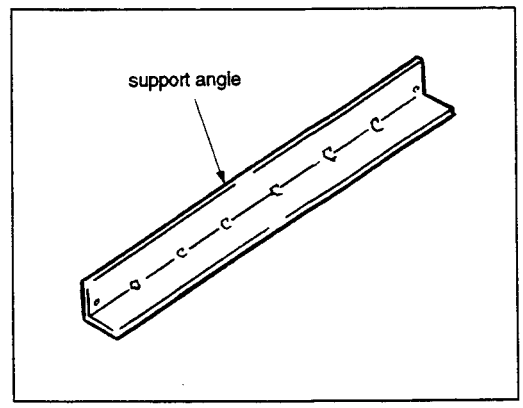
Unit=mm

2-11-2. In Case of Use Kit except RMM-980

When a support angle or a slide rail sold by rack makers is used, check the outside dimensions of the unit and the slide rail mounting holes according to the instruction manual of each rack maker.



Unit=mm



2-12. CONNECTORS

When external cables are connected to the various connectors of the connector panel during maintenance, the hardware listed below or equivalents must be used.

PANEL INDICATION	CONNECTOR
VIDEO IN * VIDEO OUT REF VIDEO IN COMPONENT VIDEO OUT TIME CODE IN * TIME CODE OUT MONITOR VIDEO	1-560-069-11 PLUG, BNC, MALE
MONITOR AUDIO	1-506-311-00 PLUG PIN
TBC REMOTE(15P)	1-561-610-21 1-561-929-00 FEMALE and JUNCTION SHELL, 15P
REMOTE(9P)	1-560-651-00 PLUG, 9P, MALE and 1-561-749-00 JUNCTION SHELL, 9P
AUDIO IN *	1-508-084-11 CONNECTOR, XLR, 3P, MALE
AUDIO OUT	1-508-083-11 CONNECTOR, XLR, 3P, FEMALE
S-VIDEO IN * S-VIDEO OUT	S-VIDEO CONNECTOR CONNECTING CABLE (Option): YC-30V (3 m) YC-15V (1.5 m)
HEADPHONES	STEREO PHONO PLUG
REMOTE	STEREO MINI PLUG

* SVO-5800 USED ONLY

2-13. INPUT/OUTPUT SIGNALS OF THE CONNECTORS

The connector input/output signals of the panel are as follows.

INPUT

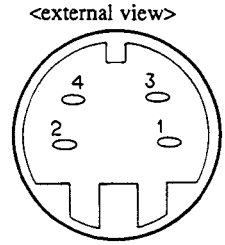
· VIDEO SYSTEM

REF VIDEO IN : BNC type ×2 (Loop-through)
Black burst or 1.0 Vp-p ± 0.3 V, 75 Ω, unbalanced, sync negative(286 mV)

VIDEO IN (SVO-5800 only) : BNC type ×2 (Loop-through)
Composite video, 1.0 Vp-p ± 0.3 V, 75 Ω, unbalanced, sync negative (286 mV)

S VIDEO IN (SVO-5800 only) : 4pin mini DIN ×1
Luminance signal : 1 Vp-p, 75 Ω, unbalanced, sync negative
Color signal : 0.286 Vp-p, 75 Ω, burst, unbalanced

<external view>



S-VIDEO

Pin No.	Input Signal
1	Y (G)
2	C (G)
3	Y (X)
4	C (X)

· AUDIO SYSTEM (SVO-5800 only)

AUDIO IN (NORM/Hi-Fi) CH-1/CH-2 : XLR 3 pin (FEMALE) ×2
-6 dBm/0 dBm/+4 dBm(switching internally high impedance/600 Ω)

AUDIO IN(Hi-Fi) CH-1/CH-2 : XLR 3 pin (FEMALE) ×2
-6 dBm/0 dBm/+4 dBm(switching internally high impedance/600 Ω)

· TIME CODE (SVO-5800 only)

TIME CODE IN : BNC type ×1
0 dBu ± 6 dB(0 dBu = 1.55 Vp-p pulse), unbalanced

OUTPUT

· VIDEO SYSTEM

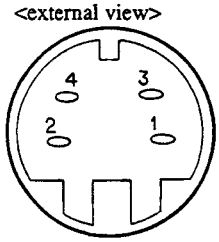
VIDEO OUT : BNC type ×1
Composite video, 1.0 Vp-p, 75 Ω, unbalanced, sync negative(286 mV)

MONITOR VIDEO : BNC type ×1
Composite video, 1.0 Vp-p, 75 Ω, unbalanced, sync negative(286 mV)

COMPONENT VIDEO OUT (with the optional SVBK-170 installed) : BNC type ×3
Y:1.0 Vp-p, 75 Ω, unbalanced, sync negative
R-Y:0.7 Vp-p, 75 Ω, unbalanced
B-Y:0.7 Vp-p, 75 Ω, unbalanced

S VIDEO OUT : 4 pin mini DIN ×2
Luminance signal: 1 Vp-p, 75 Ω, unbalanced
Color signal : 0.286 Vp-p, burst, 75 Ω, unbalanced

<external view>



S-VIDEO

Pin No.	Output Signal
1	Y(G)
2	C(G)
3	Y(X)
4	C(X)

· AUDIO SYSTEM

AUDIO OUT (NORM/Hi-Fi) CH-1/CH-2 : XLR 3 pin (MALE) ×2
-6 dBm/0 dBm/+4 dBm, switchable
(low impedance output)

AUDIO OUT(Hi-Fi) CH-1/CH-2 : XLR 3 pin (MALE) ×2
-6 dBm/0 dBm/+4 dBm, switchable
(low impedance output)

MONITOR AUDIO : Pin jack ×1
-5 dBu (47 k Ω load), unbalanced
(0 dBu = 0.775 Vrms)

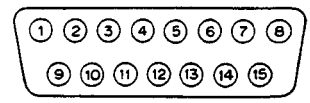
HEADPHONES : Stereo standard jack ×1
-18 dBu max (8 Ω load)
(0 dBu = 0.775 Vrms)

· TIME CODE

TIME CODE OUT : BNC type ×1
0 dBu(0 dBu = 1.55 Vp-p pulse), low impedance, unbalance

TBC REMOTE(D-SUB 15 pin:MALE)

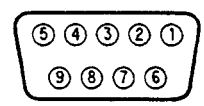
<external view>



Pin No.	Input/Output Signal	IN/OUT
1	SYNC CONTROL	I
2	HUE CONTROL	I
3	SC CONTROL	I
4	VIDEO LEVEL CONTROL	I
5	SETUP CONTROL	I
6	CHROMA LEVEL CONTROL	I
7	−9V	O
8	GND	I/O
9	FRAME GND	I/O
10	FREEZE	O
11	NOISE REDUCTION	O
12	NC	—
13	NC	—
14	NC	—
15	+9V	O

REMOTE 9P(D-SUB 9 pin:FEMALE)

<external view>

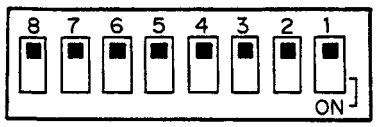


Pin No.	Input/Output Signal	IN/OUT
1	FRAME GND	—
2	TRANSMIT A	O
3	RECEIVE B	I
4	RECEIVE COMMON	—
5	SPARE	—
6	TRANSMIT COMMON	—
7	TRANSMIT B	O
8	RECEIVE A	I
9	FRAME GND	—

2-14. SWITCH SETTINGS ON THE BOARD

· SS-58 BOARD

FACTORY SETTING: ALL OFF



S101-1.TOP/END SENSOR MUTING
This switch mutes tape top and tape end detection signals.

S101-2.Always OFF

S101-3.When enter to MAINTENANCE MODE set ON.

S101-4.COMPULSION EDIT MODE SW
Generally, enter to EDIT MODE by "EDIT PRESET command" from REMOTE 9pin.
When this switch is set ON, always enter EDIT MODE.

S101-5.INSTANT OFF SW
When the unit is put into PB mode, the "INSTANT SERVO" is performed in order to advance the CTL servo lock. When this switch is set to ON, the normal CTL capture servo is performed.

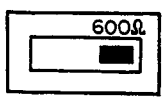
S101-6.PB BY REC SERVO
When this switch is set ON, the CAPSTAN motor in PB mode the same as REC MODE.
However, the phase servo (CTL servo) is not performed.

S101-7.Always OFF

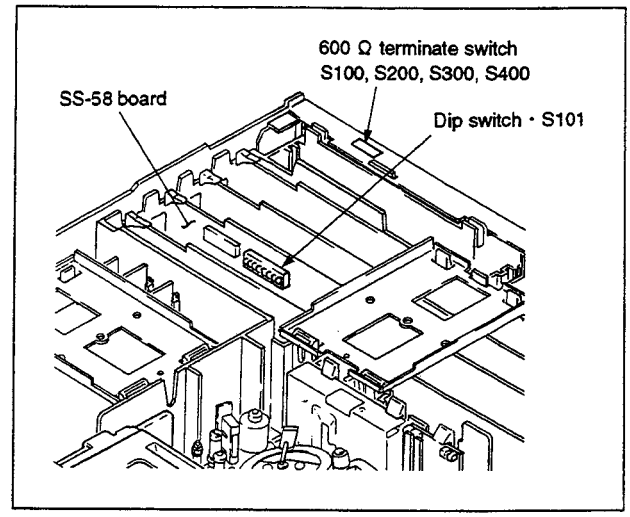
S101-8.Error detection signal muting
This switch disables error signals of system control block. Even though the machine operation is not stopped due to error detection, it can proceed to the next machine operation.

· CP-247 BOARD(SVO-5800 USED ONLY)

FACTORY SETTING: 600 Ω terminated



Switch is S100, S200, S300, S400. AUDIO IN 600 Ω input impedance select high impedance or 600 Ω.



2-15. MEMORY KEEP FUNCTION OF EE-PROM (MB-535 BOARD)

The MB-535 board has EE-PROM BR9021B(IC101) which saves the hours meter data and the menu setting data. When the MB-535 board or EE-PROM is replaced, the data set prior to replacement will be lost (Restore to factory setting). It is necessary to perform the SERVO ADJUST, METER ADJUST, MENU settings for the EE-PROM. (refer to "2-20. MAINTENANCE MENU".)
In this case, however, the hours meter value will be cleared to zero, and cannot be set again. (If it is necessary to replace a part, it is recommended that you make a record of the data in the memory prior to replaceing the part.)

2-16. EXTENSION BOARD

Four extension boards are supplied as optional accessory for check and adjustment of some printed circuit boards. Insert the extension board into the chassis of the unit and connect the circuit board to be checked or adjusted to the end of the extension board.

Extension board	Connectable Printed Circuit Boards
VH-245 J-6382-450-A	VO-47, SS-58, TBC-30, VA-148
VH-246 J-6382-460-A	DR-265, DR-266
VH-247 J-6382-470-A	DEC-75 (SVBK-170 optional board)
VH-248 J-6382-480-A	RP-74

2-17. NOTES ON SPARE PARTS

2-17-1. Notes on Spare Parts

1. Safety Related Components Warning
   Components marked with⚠on the schematic diagrams, exploded views and electrical spare parts list are critical to safe operation. Replace these components with Sony parts whose part numbers appear in this manual or in service bulletins and service manual supplements published by Sony.

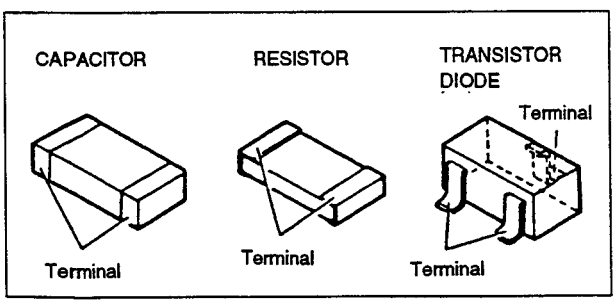
2. Standardization of Parts
   Spare parts supplies form Sony Parts Center may not be always identical with the parts which actually in use due to "accommodating the improved parts and/or engineering changes" or "standardization of genuine parts".
   This manual's exploded views and electrical spare parts list are indicating the part numbers of "the standardized genuine parts at present."

3. Stock of Parts
   Parts marked with "o" in SP (Supply code) column of the spare parts list are not normally required for routine service work. Orders for parts marked with "o" will be processed, but allow for additional delivery time.

2-17-2. Replacement Procedure for Chip Parts

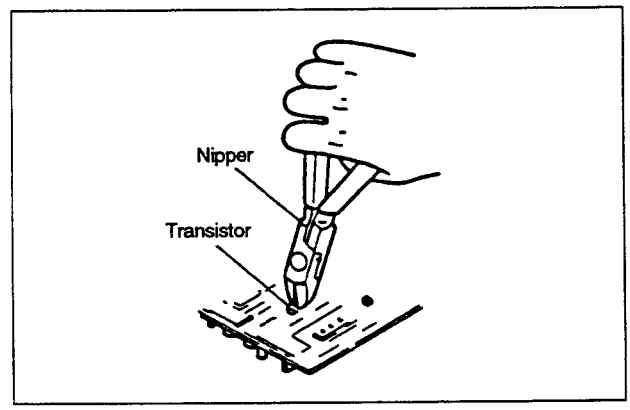
Required Tools
- Soldering iron : 20 W
  If possible, use a soldering iron tip heat-controller at 270 ± 10 ℃.
- Braided wire : SOLDER TAUL or equivalent
  Sony part No. 7-641-300-81
- Solder : 0.6 mm dia. is recommended.
- Tweezers

Soldering Conditions
- Soldering iron temperature : 270 ± 10 ℃.
- Soldering time : less than two seconds per a pin.



· Resistor and Capacitor Replacement
1. Place the soldering iron tip onto the chip part and heat it up until the solder is melted. When the solder is melted, slide the chip part aside.
2. Make sure that there is no pattern peeling, damage and /or bridges around the desoldering positions.
3. After removing the chip part, presolder the area, in which the new chip part is to be placed, with a thin layer of solder.
4. Place new chip part in the desired position and solder both ends.

· Transistor and Diode Replacement
1. Cut the terminals of the chip part with a nipper.
2. Remove the cut leads.
3. Make sure that there is no pattern peeling, damage and/or bridges around the desoldering positions.
4. After removing the chip part, presolder the area, in which the new chip part is to be placed, with a thin layer of solder.
5. Place new chip part in the desired position and solder the terminals.



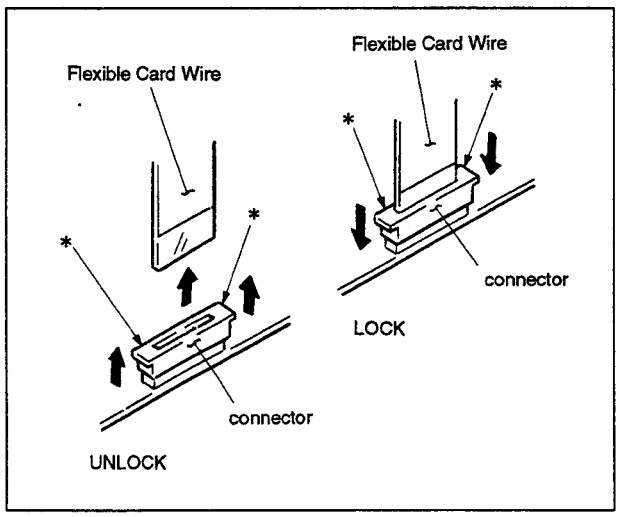
· IC Replacement
1. Using the desoldering wire, "SOLDER TAUL" Sony Part No. 7-641-300-81, remove the solder around the pins of the IC-chip to be removed.
2. While heating up the pins, remove the pins one by one using sharp-pointed tweezers.
3. Make sure that there is no pattern peeling, damage and/or bridges around the desoldering positions.
4. After removing the chip part, presolder the area, in which the new chip part is to be placed, with a thin layer of solder.
5. Place new chip part in the desired position and solder the pins.

Note: Do not use a chip part again once it has been removed.

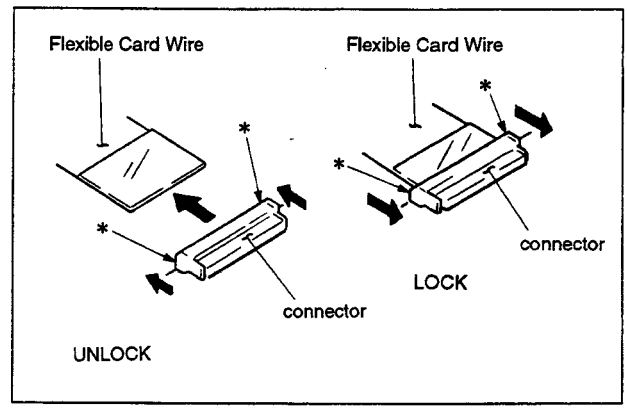
2-17-3. Replacement of Flexible Card Wires (22P)

Two 22P flexible card wires are used on between the MB-535 board and the KY-303 board.
When handling a flexible card wire, be very careful not to bend it because this will markedly reduce its life.

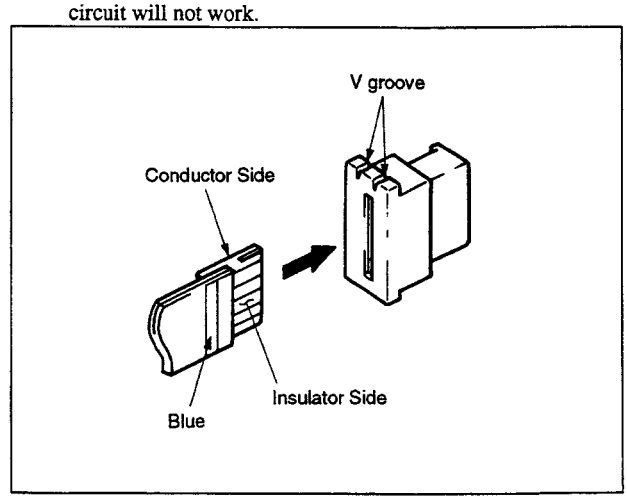
<Straight Type>
Disconnecting procedure
Pull up the * marked portions of connector, and pull out the flexible card wire from the connector.
Installing procedure
Install the flexible card wire as far as it will go (up the line indicated on the flexible card wire) and push down the * marked portions of connector.



<Angle Type>
Disconnecting procedure
Slide the * marked portions of connector in the direction of the arrow, and then pull out the flexible card wire from the connector.
Installing procedure
Insert the flexible card wire so that is conductor side is facing the printed circuit board, and insert it as far as it will go (up to the line indicated on the flexible card wire). Then slide it in the opposite direction of the arrow to lock.



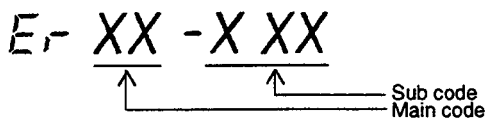
Note: The flexible card wire consists of conductor side and insulator side. The flexible card wire must be inserted with the conductor side facing the correct way. If it is not the circuit will not work.



2-19. ERROR CODES

This set provides an error display function that displays the error if a trouble condition occurs.
When a failure is detected in the normal operating state, the error is immediately displayed on the time counter display at the front.
In most cases, when an error occurs, the system enters the protective action and stops to operate.
Each error is displayed by its error code and the current operating state at the occurrence of the error is displayed by its sub error code.

2-19-1. Main code and sub code



· **Main code**

Main code is shown by two digits which indicates system where the errer occurred.

Main code 0X : Defects of servo and tape path system
Main code 2X : Defects of mechanism control system
Main code 3X : Defects of sensor system
Main code 9X : Defects of communication and interface system

· **Sub code**

Sub code is shown in three digits. Each digit has the following meanings.

When the main code is 0X or 2X :

X X X
| | |
| | 3rd digit : Detail of state
| 2nd digit : Defects detection device
1st digit : Defects detection mode

1st digit : Defects detection mode
0 : It cannot specify the mode.
1 : Cassette-down mode
2 : Threading mode
3 : STOP mode
4 : F. FWD or REW mode
5 : SEARCH mode
6 : PLAY or REC mode
8 : Unthreading mode
9 : Cassette-up mode

2nd digit : Defects detection device
0 : It cannot specify the device.
1 : Cassette up/down motor, or cassette up/down sensor
2 : Threading motor or sensor
3 : Drum motor or FG
4 : Capstan motor or FG
5 : S reel motor or FG
7 : T reel motor or FG
9 : S/T reel motor or FG

3rd digit : Detail of state
0 : Determination of mode is not necessary.
1 : Operation cannot be completed within specified time.
2 : Detects that the speed is not normal.
4 : FG output cannot be detected.
6 : Detects the rotation is not normal.

When the main code is 3X :
The sub code is 000.

When the main code is 9X:

X X X
| | |
| | 3rd digit : Detail of state
| 2nd digit : CPU(u-COM) or device which is regarded as a defect
1st digit : Defects detection CPU(u-COM) or device

1st and 2nd digits : CPU (u-COM) code
1 : System control main CPU
2 : Keyboard u-COM
3 : EEPROM
4 : Servo main CPU
5 : Servo sub u-COM

3rd digit : Detail of state
1 : Check sum error
5 : Communication cannot be completed (within the specified time)
6 : Failure in servo adjustment data area on EEPROM
7 : Failure in set-up menu area on EEPROM
8 : Failure in hours meter area on EEPROM

2-19-2. Error code list

Main Code	Sub Code	Contents	Error detecting method	Possible failure
Er02	(* 1)	**No reel rotation/reel stoppage** · The reel motor would not operate for a specific time in the reel operation mode, the tape protective action was executed.	The rotational speed obtained from the FG output of Supply or Takeup reel motor is zero for a specific time.	· Cut or coiling tape · Improper operation of RVS guide · Improper operation of tension regulator assembly (TG-2 guide) · Faulty circuit in tension sensor system · Poor adjustment of tape tension/torque · Malfunction of capstan motor · Malfunction of pinch solenoid · Improper operation of pinch roller block assembly · Improper operation of LDB brake · Faulty circuit in reel FG system · Malufunction of S/T reel motor · Break or poor connection of harness · Improper operation of reel brake · Faulty circuit in tape top/end sensor system (when an error occurred at tape top/end.) · Looseness of set screws for securing the reel base assembly · Damaged reel base assembly
		Incorrect direction of reel rotation · The reel motor was rotating in an incorrect direction for a specfic time in the reel operation mode ; the tape protective action was executed.	The direction of reel rotation obtained from the FG output of Supply or Takeup reel motor is incorrect for a specific time.	
		Incorrect increase of reel rotational speed · The rotational speed of reel motor became incorrectly faster in the reel operation mode ; the tape protective action was executed.(*2)	The rotation speed obtained from the FG output of reel motor is more than the specified value for a specific time.	
		Reel motor won't stop · When the mode is switched from F FWD/REW to STOP mode, the reel motor would not stop within a specific time ; the protective action was executed.(*2)	The rotational speed obtained from the FG output of reel motor was not zero in a specific time.	
Er07	044	**No capstan rotation** · The capstan motor would not operate for a specific time ; the tape protective action was executed.(*3)	The rotational speed obtained from the FG output of capstan motor is zero for a specific time.	· Poor adjustment of capstan FG duty ratio · Malfunction of capstan motor · Faulty circuit in capstan FG system · Break or poor connection of harness
Er08	034	**No drum rotation/drum stoppage** · The drum motor would not rotate for a specific time in the drum rotation mode ; the tape protective action was executed.	The rotational speed obtained from the FG output of drum motor is less than the specified value for a specific time.	· Tape coiling around drum · Break or poor connection of harness · Malfunction of drum motor · Faulty circuit in drum FG/PG system

*1 ; Refer to 2-19-3. Probable cause of the error code.

*2 ; If tape is cut, the protective action may fail to be executed and reel motor may continue to rotate.
In this case, the power of VTR should be turned off to stop the motor to rotate.

*3 ; If the capstan won't rotate in the playback/record mode or if the capstan stops on the way in the playback/record/search mode, the system will first of all detect the condition that Takeup reel won't rotate or stops and Er02 be activated.

Main Code	Sub Code	Contents	Error detecting method	Possible failure
Er09	221	**Failure in threading operation** · The threading operation was not completed within a specific time ; the operation was stopped. (Switch from threading end state to STOPped state) (Switch from STOPped state to unthreading end state)	The threading operation was not completed in a specific time after commanded by system microcomputer.	· Damaged projection of BC roller assembly · Failure in reel motor brake operation · Malfunction of loading motor · Improper gear position of loading unit · Improper detection by cam mode sensor · Break or poor connection of harness
	821	**Failure in unthreading operation** · The unthreading operation was not completed within a specific time ; the operation was stopped. (Switch from unthreading end state to STOPped state) (Switch from STOPped state to threading end state)	The unthreading operation was not completed in a specific time after commanded by system micro-computer.	
Er20		**Failure of cassette compartment operation** · The cassette up/down operation was not completed within a specific time ; the operation was stopped.	The cassette up/down operation was not completed in a specific time after commanded by system microcomputer.	· Malfunction of cassette compartment motor · Improper operation of cassette compartment · Malfunction of cassette in/miss REC switch · Malfunction of cassette down switch · Break or poor connection of harness
	111 ·····	Cassette down		
	911 ·····	Cassette up		
Er30	000	Failure in the tension regulator LED was detected ; the protective action was executed.	The voltage of the tension regulator LED failure detection input to the reel microcomputer was set at High level (logic level) continuously for a specific time.	· Fault in tension regulator LED · Break or poor connection of harness · Fault in detection circuit · Fault in reel microcomputer
Er31	000	Failure in the tape top/end LED was detected ; the protective action was executed.	The voltage of the tape top/end LED failure detection input to the reel microcomputer was set at High level (logic level) continuously for a specific time.	· Fault in tape top/end LED · Break or poor connection of harness · Fault in detection circuit · Fault in LED ON/OFF circuit · Fault in reel microcomputer
Er32	000	LED failure in the cam mode sensor was detected ; the protective action was executed.(*4)	The voltage of the cam mode LED failure detection input to the system microcomputer was set at High level (logic level) continuously for a specific time.	· Fault in cam mode sensor LED · Breake or poor connection of harness · Fault in detection circuit · Fault in system microcomputer

*4 ; When power is turned on with cassette inserted, if Er32 is displayed, Er09 (sub error code 821) will be displayed in a while.

Main Code	Sub Code	Contents	Error detecting method	Possible failure
Er90	211	Communication error with the SS board IF microprocessor (IC518) detected by the KY board microprocessor (IC101)	If checksum of communication is abnormal more than a specified times.	· The signal line connected to pin-16 of the KY board microprocessor is broken or having poor contact. · SS board microprocessor (IC518) is defective.
	215		If the KY SELECT IN signal is not input for a specified period from the SS board IF microprocessor (IC518).	· The signal line connected to pin-46 of the KY board microprocessor is broken or having poor contact. · SS board microprocessor (IC518) is defective.
Er91	121	Communication error with the KY board microprocessor (IC101) detected by the SS board IF microprocessor (IC518)	If checksum of communication is abnormal more than a specified times.	· The signal line connected to pin-11 of the SS board microprocessor (IC518) is broken or having poor contact. · KY board microprocessor is defective.
	125		If serial clock is not input for a specified period from the KY board microprocessor (IC101).	· The signal line connected to pin-14 of the KY board microprocessor is broken or having poor contact. · KY board microprocessor is defective.
	136 137 138	Abnormal data stored in the MB board EEPROM is detected	· Data cannot be saved correctly. · The read data exceeds a specified limit	· Communication lines connected to pins-16, -17, -18, -29 and -30 of the SS board IF microprocessor (IC518) is broken or is having poor contact. · The MB board EEPROM is defective. · It is the time to change the MB board EEPROM.
	141	Communication error with the SS board SS microprocessor (IC101) detected by the SS board IF microprocessor (IC518)	If checksum of communication is abnormal more than a specified times.	· The signal line connected to pin-11 of the SS board IF microprocessor (IC518) is broken or having poor contact. · The SS board SS microprocessor (IC101) is defective.
	145		If serial clock is not input for a specified period from the SS board SS microprocessor (IC101).	· The signal line connected to pins-6 and -13 of the SS board IF microprocessor (IC518) is broken or having poor contact. · The SS board SS microprocessor (IC101) is defective.
	170	Communication error with the SS board timecode IC (IC517)	If it is detected that the SS board timecode IC (IC517) pin-71 does not go to "L" for a specified period. (During power startup time)	· The signal line connected to pin-71 of the SS board timecode IC (IC517) is broken. · The SS board timecode IC (IC517) is defective.
	180	Communication error with the SS board CTL IC (IC521)	If correct data cannot be written in the SS board CTL IC (IC521). (During power startup time)	· The communication line connected to pins-16, -17, -18, -27 and -28 of the SS board IF microprocessor (IC518) is broken. · The SS board CTL IC (IC521) is defective.

Main Code	Sub Code	Contents	Error detecting method	Possible failure
Er91	411	Communication error with the SS board IF microprocessor (IC518) detected by the SS board SS microprocessor (IC101)	If checksum of communication is abnormal more than a specified times.	· The signal line connected to pin-45 of the SS board SS microprocessor (IC101) is broken or having poor contact. · The SS board SS microprocessor (IC101) is defective.
	415		If the SS SELECT IN signal is not input for a specified period from the SS board IF microprocessor (IC518) .	· The signal line connected to pin-82 of the SS board SS microprocessor (IC101) is broken. · The SS board SS microprocessor (IC101) is defective.
	451	Communication error with the DR board RS microprocessor (IC703) detected by the SS board SS microprocessor (IC101)	If checksum of communication is abnormal more than a specified times.	· The signal line connected to pin-79 of the SS board SS microprocessor (IC101) is broken or having poor contact. · The DR board RS microprocessor (IC703) is defective.
	455		If serial clock is not input for a specified period from the DR board RS microprocessor (IC703).	· The signal line connected to pins-81 and -83 of the SS board SS microprocessor (IC101) is broken or having poor contact. · The DR board RS microprocessor (IC703) is defective.
Er92	100	If the SS board IF microprocessor (IC518) cannot detect the system clock 1/2 VD.	If the SS board IF microprocessor (IC518) cannot detect the system clock 1/2 VD for a specified period.	· The communication line connected to pin-64 of the SS board IF microprocessor (IC518) is broken. · The SS board SS microprocessor (IC101) is defective.

2-19-3. Probable cause of the error code

· Probable cause of the error code (Main code Er02)

Detected error mode	Cassette down	Threading	STOP	F.FWD/REW			SEARCH			PLAY/REC			Un-threading	Cassette up
Sub code S Reel / T Reel / S/T Reel / Probable cause	152 172 192	252	352 372 392	452 472 492	454 474 494	456 476 496	552 572 592	554 574 594	556 576 596	652 672 692	654 674 694	656 676 696	852 872 892	952 972 992
1.Tape is cut or slackened	○	○	○	○		○	○		○	○		○	○	○
2.Tape abnormal friction					○			○			○			
3.Reel motor defective		○	○	○	○	○	○	○	○	○	○	○	○	
4.Reel FG system operation faulty	○	○	○		○		○	○		○	○		○	
5.Tension adjustment incorrect		○		○	○		○	○	○		○	○		
6.Reel torque adjustment incorrect	○	○	○	○			○			○			○	○
7.Harness broken, connection incomplete, poor contact		○		○	○	○	○	○	○	○	○	○	○	
8.RVS guide operation faulty		○	○										○	
9.Tension sensor system operation faulty							○	○			○			
10.Reel brake operation faulty			○		○			○			○			○
11.Capstan motor operation faulty							○	○		○	○			
12.Top/end sensor circuit defective				○				○		○	○			
13.Pinch roller, solenoid operation faulty			○				○	○		○	○		○	

· How to check the probable cause

Probable cause	How to Check
Tape is cut or slackened · Tape stained · Tape run system stained · HUMID	Is tape cut? Is foreign meterial attached to tape? Is tape damaged? Is foreign material attached to tape run mechanism?
Tape abnormal friction	Is tape stuck to guide or drum?
Reel motor defective · Driver ICs defective · Soldering to IC faulty · Soldering to connectors faulty	Re-solder ICs and connectors Is voltage present at the driver IC? If voltage is present, motor is defective
Reel FG system operation faulty · Printed foil pattern broken · IC defective · Harness defective	Check the reel FG circuit
Tension adjustment incorrect	Is the tension regulator in incorrect position? Is the tension regulator unstable?
Harness broken, connection incomplete, poor contact	Insert the connector in the suspected circuit paths.
RVS guide operation faulty	Check threading and unthreading visually
Tension sensor system operation faulty	Put the machine in PB mode without cassette. Move the tension regulator with hand. Observe TP407 on the DR-266 board with an oscilloscope. If voltage follows the tension regulator movement in the range starting from the unhanded position to the normal operating point, the tension sensor system is not faulty. Check then the related circuit.
Reel brake operation faulty	Check operation of the mechanical brake in mechanical deck.
Capstan motor operation faulty	Check the capstan FG and CTL
Top/end sensor circuit defective	Check it using the MAINTENANCE MENU - SERVICE SUPPORT - SENSOR submenu
Pinch roller, solenoid operation faulty	Check the drive circuit

2-20. MAINTENANCE MENU

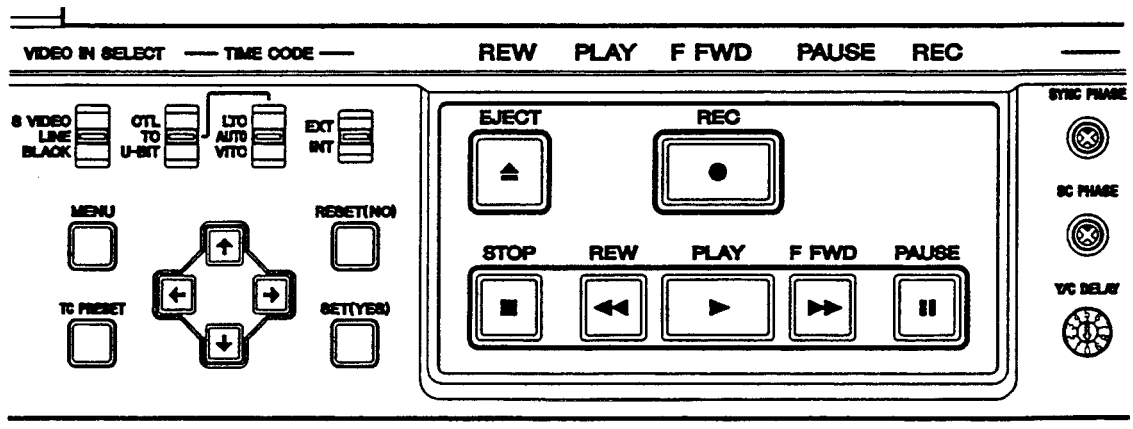
This equipment provides the maintenance menu which is necessary when performing maintenance.
The maintenance menu consists of some levels. Checks, settings and adjustments are performed by moving in these levels. Contents of the maintenance menu are displayed on the video monitor which is connected with VIDEO OUTPUT connector and time counter.

( )...time counter display/*

Menu Level 1	Menu Level 2	Menu Level 3
SERVO ADJUST (F100)	TRACKING VR CENTER (F111)	———
	CAPSTAN FG DUTY (F120)	AUTO (F121) FG (A) (F122) FG (B) (F123)
	S-REEL TORQUE (F131)	———
	T-REEL TORQUE (F141)	———
	FWD TAPE TENSION (F151)	———
	REV TAPE TENSION (F161)	———
	PAUSE TENSION (F171)	———
	RF SWITCHING POSI. (F181)	———
METER ADJUST (F200)	TRACKING (F201) AUDIO CH1 (F202) AUDIO CH2 (F203)	———
KEY BOARD CHECK (F301)	———	———
MEMORY DISPLAY (F401)	———	———
HOURS METER (F501)	———	
SERVICE SUPPORT (F600)	ERROR LOG (F601) SENSOR (F602) SOLENOID (F603)	———
SOFTWARE VERSION (F701)	———	———

2-20-1. OPERATION

Following switches are used so as to execute the maintenance menu.



This figure is for SVO-5800.

The MENU / ↑ / ↓ /←/→/SET (YES) /RESET (NO) switches on the front panel are used.
The maintenance menu consists of some levels. Select an item by moving in these levels.
↑ / ↓ key .....Moving in the same level.
←/→ key .....Moving to the upper or lower level. (Ignored if a lower level does not exit.)

[How to enter the maintenance menu]

1. Set the S101-3 on the SS-58 board to ON.
2. While pressing the (←) key, press the MENU key.
   Then the unit enters into the maintenance menu, and the menu picture is displayed on the monitor.
3. Press the (↑), (↓) keys to select the item to change.
   Move the high lighted item to select the item on a monitor display.
4. Press the (→) key at the item to select.
   This selects the high lighted item.

Note : If S101-3 on the SS-58 board is set to off (factory default), the HOURS METER only is displayed.

[How to close the maintenance menu]

1. Press the MENU key.
2. Set the S101-3 on the SS-58 board to OFF.

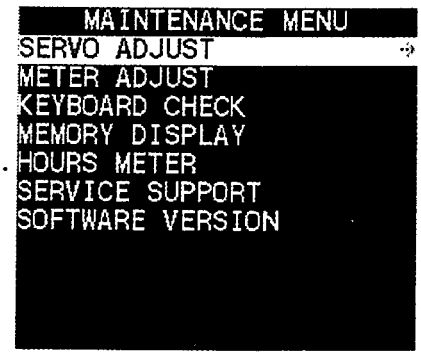
2-20-2. SERVO ADJUST

Adjusts respective motors and the servo reference positions.

[Procedure]

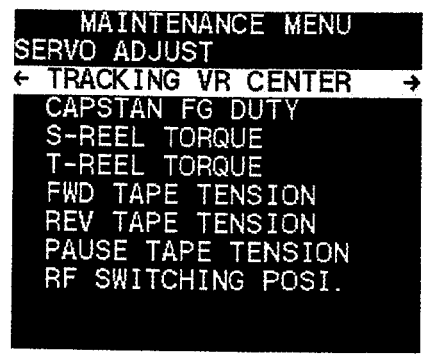
1. The unit enters into the maintenance menu.
2. Move the high lighted item to the "SERVO ADJUST" on the monitor display using the (↑), (↓) keys.

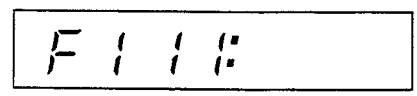
Video monitor ·····



Time counter·····

3. Press the (→) key. Then "SERVO ADJUST" is selected, and the menu of the lower level is displayed.
4. Move the high lighted item to the item to select, using the (↑), (↓) keys.
   (Refer to each page of menu item about a method of check.)
5. Press the (→) key, and execute the high lighted item.
   (Refer to each page of menu item about a method of check.)
6. When adjustment is finished, press the (←) key to return to the menu picture.
   Or, press the (←) key to return to the MENU key.
7. If there are other menus or sub menus wishing to be checked, repeat steps 4 to 6.
8. When closing the maintenance menu, press the MENU key.



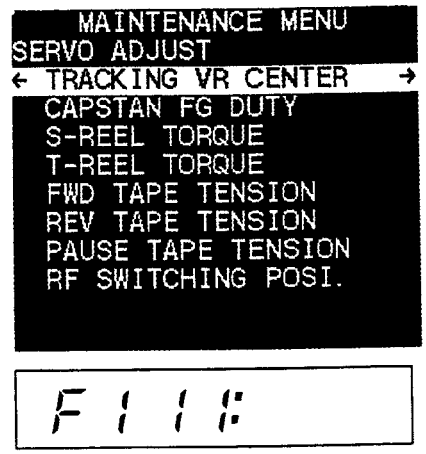


Note1 : If the MENU key is pressed without pressing the SET (YES) key in the following adjustments, "ABORT!" appears on the monitor display without saving the new adjustment data. The data before starting the adjustment is saved and the maintenance menu terminates. (Except for AUTO adjustment of the CAPSTAN FG DUTY)

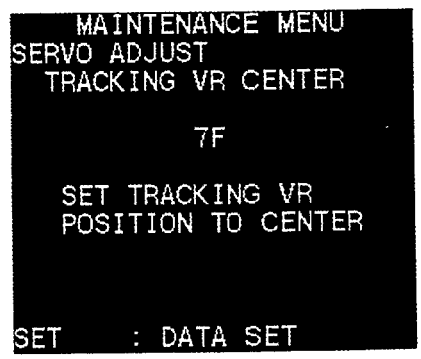
TRACKING VR CENTER

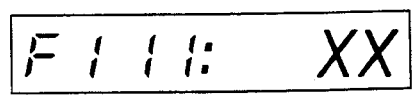
Memorizes the center value of the TRACKING control on the front panel.

1. Set the TRACKING control on the front panel to the center click position.
2. Move the high lighted item to the "TRACKING VR CENTER" on the monitor display using the (↑), (↓) keys.

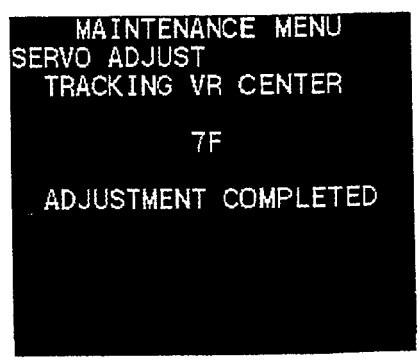


3. Press the (→) key.
   Then "TRACKING VR CENTER" is selected, and the menu of the lower level is displayed.





4. Press the SET (YES) key. (Refer to Note 1)
   Confirm that Save is performed, and "ADJUSTMENT COMPLETED" is displayed.



CAPSTAN FG DUTY

Adjusts the duty ratio of the capstan FG signal. (Refer to section 9).

S-REEL TORQUE

Adjusts variations in the supply reel motor torque. (Refer to section 5-1).

T-REEL TORQUE

Adjusts variations in the take-up reel motor torque. (Refer to section 5-1).

FWD TAPE TENSION

Adjusts the tape tension in FWD mode. (Refer to section 5-2).

REV TAPE TENSION

Adjusts the tape tension in REV mode. (Refer to section 5-2).

PAUSE TAPE TENSION

Adjusts the tape tension in PAUSE mode. (Refer to section 5-2).

RF SWITCHING POSI.

Adjusts the RF switching position. (Refer to section 6-13).

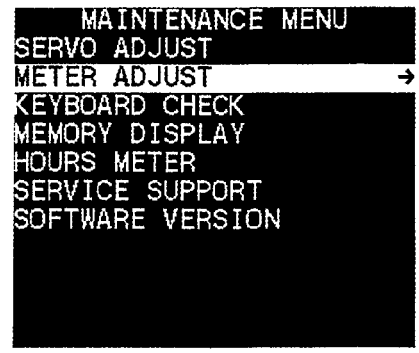
2-20-3. METER ADJUST

Calibrates the center position of meters on the time counter.

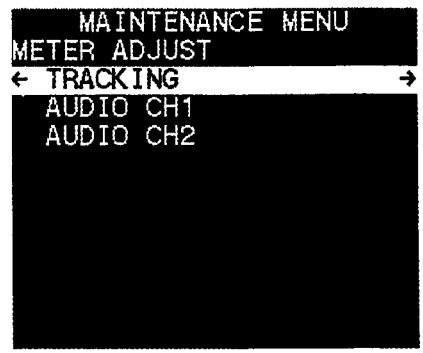
TRACKING METER ADJUST

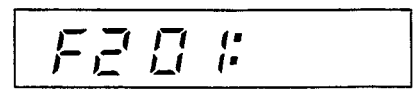
[Procedure]

1. The unit enters into the maintenance menu.
2. Move the high lighted item to the "METER ADJUST" on the monitor display using the (↑), (↓) keys.
3. Press the (→) key.
   Then "METER ADJUST" is selected, and the menu of the lower level is displayed.



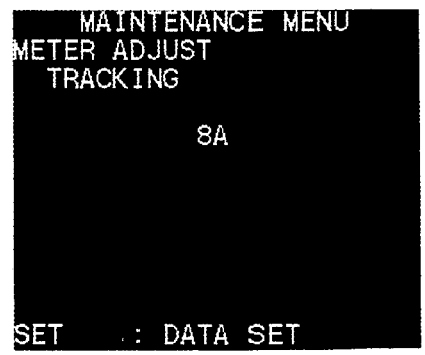
4. Move the high lighted item to the "TRACKING", on the monitor display using the (↑), (↓) keys.
5. Press the (→) key.
   Then "TRACKING" is selected, and the unit enters into the adjustment mode.

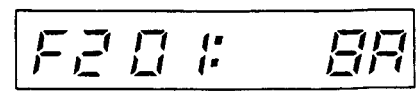




6. Record the color bars signal using Sony VHS HG tape.
   (In model SVP-5600, use pre-recorded tape recorded by SVO-5800.)

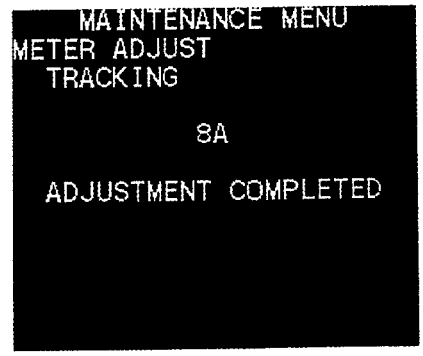
7. Playback the recorded segment of the tape. Find the segment which shows a stable value on the monitor display and press SET (YES) key to save the data.

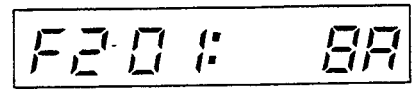




8. Confirm that save is performed, and "ADJUSTMENT COMPLETED" is displayed.

Note : After adjustment is completed, make sure to save in this mode.



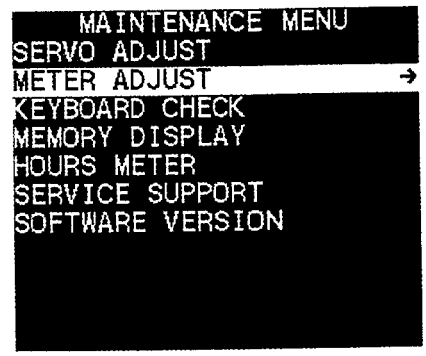


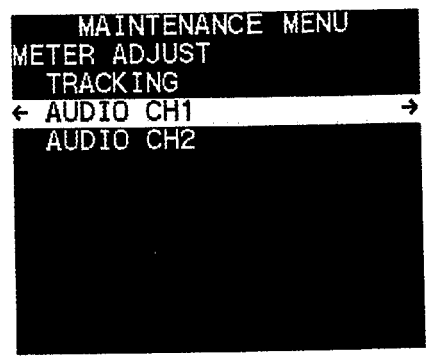
AUDIO METER ADJUST

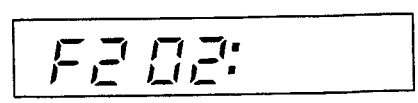
The AUDIO METER should not need adjusting. Perform this adjustment only if fine adjustment becomes necessary.

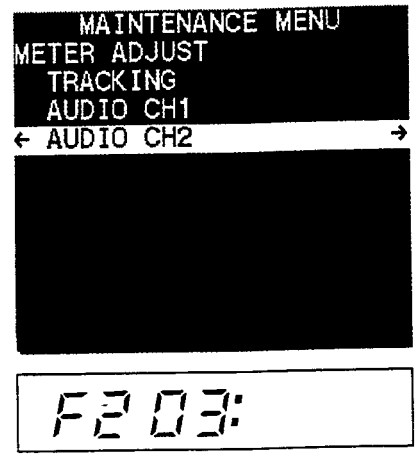
[Procedure]

1. The unit enters into the maintenance menu.
2. Move the high lighted item to the "METER ADJUST" on the monitor display using the (↑), (↓) keys.
3. Press the (→) key.
   Then "METER ADJUST" is selected, and the menu of the lower level is displayed.
4. Move the high lighted item to the "AUDIO CH1" or "AUDIO CH2" on the monitor display using the (↑), (↓) keys.
5. Press the (→) key.
   Then "AUDIO CH1" or "AUDIO CH2" is selected, and the unit enters into the adjustment mode.

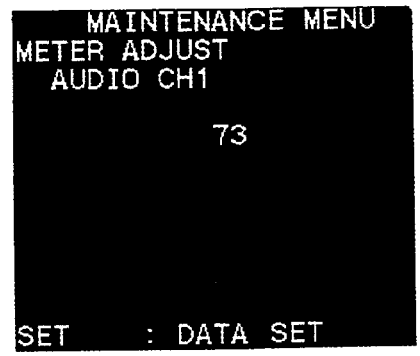


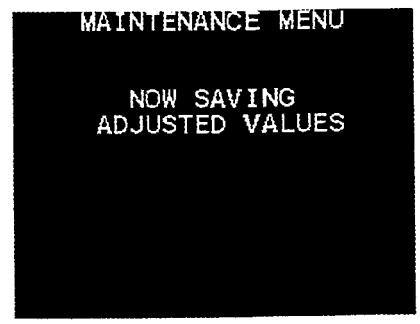






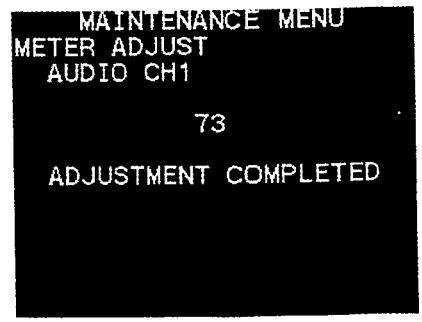
6. In model SVO-5800, input an audio signal of 1 kHz, +4 dBm to AUDIO IN (Hi-Fi) CH-1 and CH-2 connectors. Proceed to steps 7 ~ 11, 13 and higher.
   In model SVP-5600, proceed to step 12.
7. Set the reference input level switch (Hi-Fi) to + 4 dBm.
8. Set the reference output level switch to + 4 dBm.
9. Set the set-up menu AUDIO CONTROL - HI-FI REC SEL to HI-FI INPUT.
10. Set the METER switch to Hi-Fi.
11. Observe the AUDIO OUT (Hi-Fi) CH-1 and CH-2 connectors with an audio level meter. Adjust the front panel AUDIO LEVEL Hi-Fi controls CH-1 and CH-2 until the specifications are satisfied.
    Specifications : + 4.0 +/- 0.1 dBm
12. Playback the alignment tape KRV-35NF.
13. Find the segment of the tape which shows a stable value on the audio level meter and press SET (YES) Key to save the data.





14. Confirm that save is performed, and "ADJUSTMENT COMPLETED" is displayd.

Note : After adjustment is completed, make sure to save.

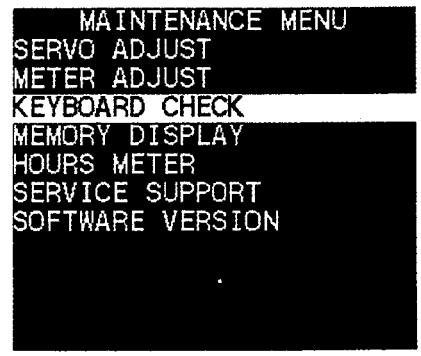


2-20-4. KEYBOARD CHECK

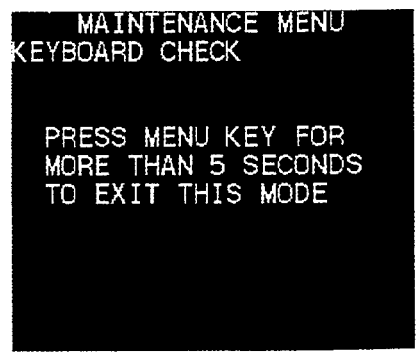
Checks the keys, slide switches and display system on the front panel.

[Procedure]

1. The unit enters into the maintenance menu.
2. Move the high lighted item to the "KEYBOARD CHECK" on the monitor display using the (↑), (↓) keys.



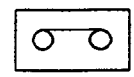
3. Press the (→) key.
   Then "KEYBOARD CHECK" is selected, and the unit enters into the check mode.
4. Information of the changed switches or the pressed keys appears on the time counter. (Refer to page 2-37 to 2-39).



Note : Press the MENU key five seconds or longer to exit from the mode.

KEYBOARD CHECK

Switches/keys	Time counter	Indicators
EJECT	EJECt	AUDIO LIMITER
STOP	StOP	DOLBY NR
REW	rEWW	TIME CODE
PLAY	PLAY	FRAMING
F.FWD	FF	TBC
REC	rEC	REC INHIBIT
PAUSE	PAUSE	AUTO OFF
MENU	MMEnU	S VHS
TC PRESET	Pr-ESEt	Hi-Fi
←	LEFt	HOURS
↑	UP	MINUTES
↓	dOWn	SECONDS
→	r19ht	FRAMES

Switches/keys		Time counter	Indicators
RESET (NO)		rESEt	VITC
SET (YES)		SEt	———
COUNTER RESET		C rESEt	
Two switches pressed at the same time		dOUbLE	———
C B T	BYPASS	byPASS	———
C B T	LOCAL	tbCLOCAL	———
C B T	REMOTE	tbCrMt	———
Time Counter display selector	CTL	Ctl: :	———
Time Counter display selector	TC	tC: . .	———
Time Counter display selector	U-BIT	Ub	———
Time Code selector	LTC	LtC	———
Time Code selector	AUTO	AUtO	———
Time Code selector	VITC	uitC	———
	EXT	tC Et	———

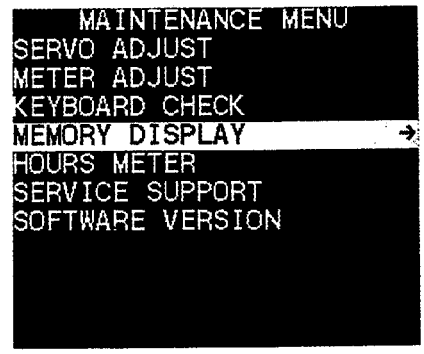
Switches/keys		Time counter	Indicators
	INT	tC Int	----
Input	S VIDEO	Su IdEO	----
Input	LINE	L InE	----
Input	BLACK	bL AC	----
	REMOTE	rEMOtE	----
	LOCAL	LOCAL	----
CH-2 Meter	AUDIO	AUdIO	----
CH-2 Meter	TRACKING	tr-ACOn	TRACKING
Meter	HI-FI	HIFI	----
Meter	NORM	LAU	----
	CH-1	CH - 1	----
	MIX	CH -MM	----
	CH-2	CH -2	----
	YC DELAY	YC dLY 0	----
		YC dLY F	

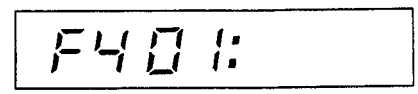
2-20-5. MEMORY DISPLAY

Checks memories of respective microprocessors.

[Procedure]

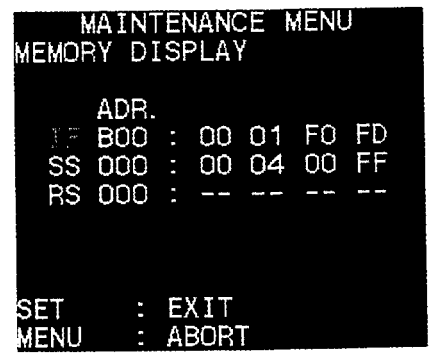
1. The unit enters into the maintenance menu.
2. Move the high lighted item to the "MEMORY DISPLAY" on the monitor display using the (↑), (↓) keys.



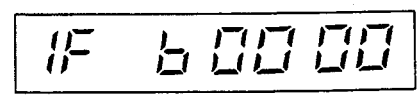


3. Press the (→) key.
   Then "MEMORY DISPLAY" is selected, and the unit enters into the memory check mode.
4. Select a microprocessor memory from IF, SS or RS to check using the(↑), (↓) keys.

   IF : SS-58 board IC518
   SS : SS-58 board IC101
   RS : DR-266 board IC703



5. Select a memory column of the microprocessor memory to check using the (→), (←) keys. Select a memory address using the (↑), (↓) keys.
   Refer to section 2-21. MICROCOMPUTER MEMORY DISPLAY MODE.



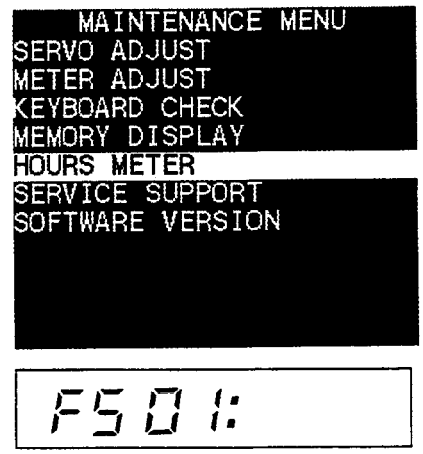
6. Press the SET (YES) key or MENU key to stop this mode.

2-20-6. HOURS METER

Displays the operating hours of head drum and the threading/ unthreading times of mechanism

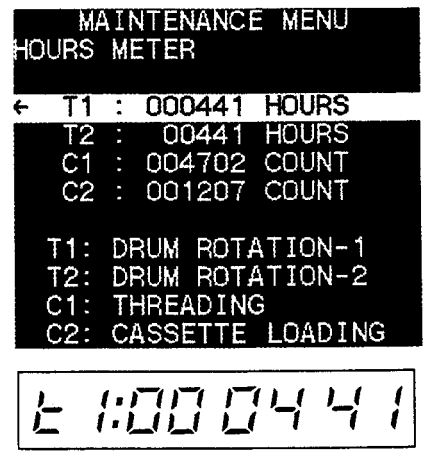
[Procedure]

1. The unit enters into the maintenance menu.
2. Move the high lighted item to the "HOURS METER" on the monitor display using the (↑), (↓) keys.



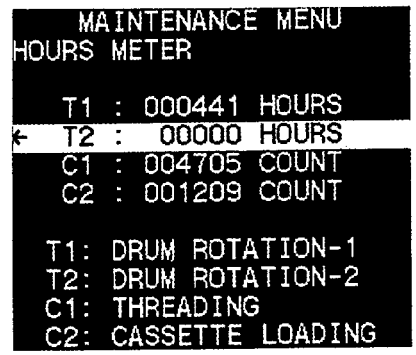
3. Press the (→) key.
   Then "HOURS METER" is selected, and the unit enters into the check mode.
4. The data displayed in the high lighted column selected by the (↑), (↓) keys is displayed on the time counter.

   T1 = Accumulated operating hours of the head in the rotary drum which cannot be reset.
   T2 = Accumulated operating hours of the head in the rotary drum which can be reset.
   C1 = Accumulated threading/unthreading times which can be reset.
   C2 = Accumulated cassette loading times which can be reset.

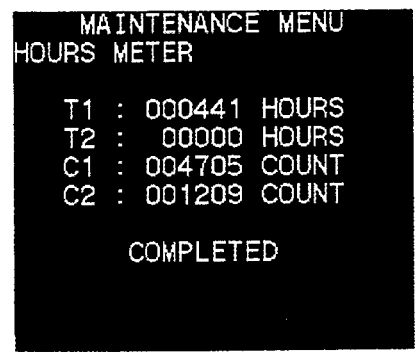


[How to reset the HOURS METER]

1. Select the desired item to reset and highlight it using (↑), (↓) keys.



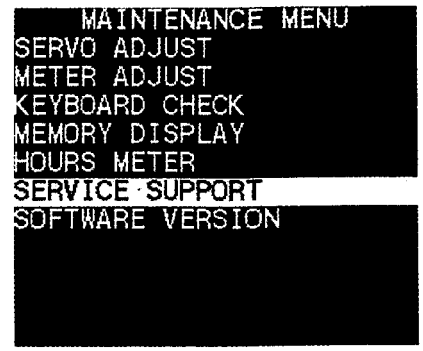
2. If the RESET (NO) key is pressed, the data after reset appears.
3. Press the SET (YES) key to activate the reset operation. After completing the reset operation, check that "COMPLETED" appears on display.



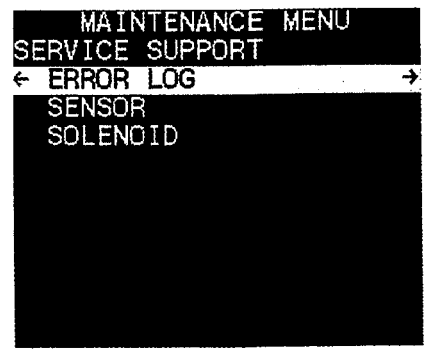
2-20-7. SERVICE SUPPORT

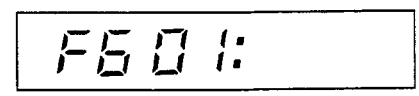
Displays the error code, sensor information and solenoid control status that have occurred last.

1. The unit enters into the maintenance menu.
2. Move the high lighted item to the "SERVICE SUPPORT" on the monitor display using the (↑), (↓) keys.



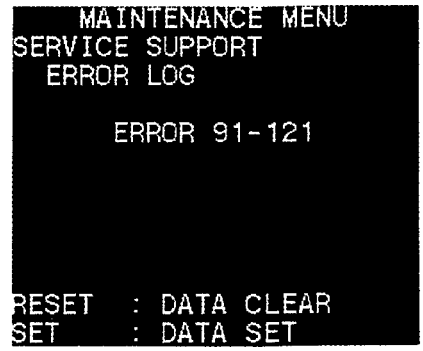
3. Press the (→) key.
   Then "SERVICE SUPPORT" is selected, and the menu of the lower level is displayed.
4. Move the high lighted item to the item to select, using the (↑), (↓) keys.
5. Press the (→) key, and execute the high lighted item.
   (Refer to each page of item about a method of adjustment.)
6. When check is finished, press the (←) key to return to the menu picture.
7. If there are other items wishing to be checked, repeat steps 4 to 6.
8. When closing the maintenance menu, press the MENU key.

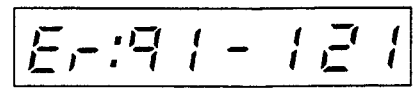




ERROR LOG

Displays the error that has occurred last in this machine.





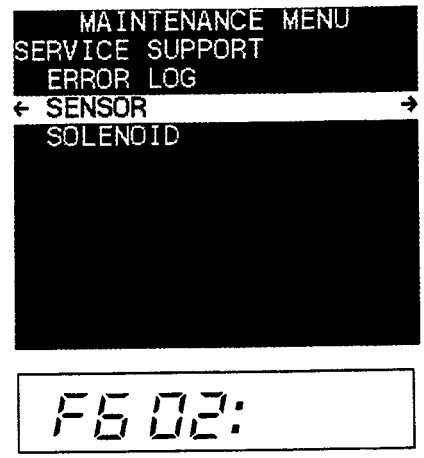
[How to clear error code]

1. If the RESET (NO) key is pressed, the data after reset appears.

2. Press the SET (YES) key to activate the reset operation. After completing the reset operation, check that "COMPLETED" appears on display.

SENSOR

Displays the various sensor status.
Change the item to be displayed on the time counter using the (↑), (↓) keys.

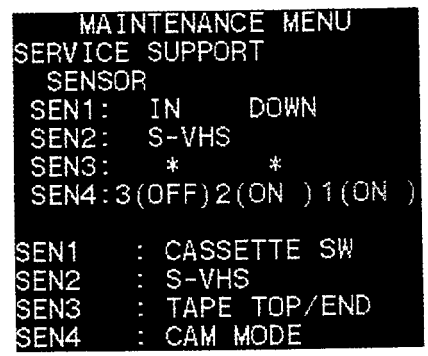


SEN1 : CASSETTE COMPARTMENT SENSOR

CASSE CON. Operation	Monitor	Time counter
EJECT	* *	SEn1: 0 0
CASSETTE IN~DOWN	IN *	SEn1: 1 0
CASSETTE DOWN	IN DOWN	SEn1: 1 1

SEN2 : S-VHS CASSETTE SENSOR

Mode	Monitor	Time counter
EJEC State	S-VHS	SEn2: 1
S-VHS CASSETT Inserted	S-VHS	SEn2: 1
N-VHS CASSETT Inserted	VHS	SEn2: 0



SEN3 : TAPE TOP/END SENSOR

Mode	Monitor	Time counter
TOP Detected	TOP *	SEn3: 1 0
END Detected	* END	SEn3: 0 1
TOP/END Detected	TOP END	SEn3: 1 1
TOP/END Not Detected	* *	SEn3: 0 0

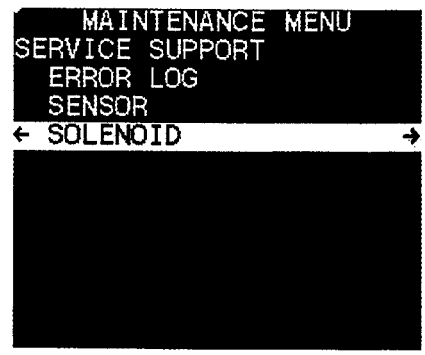
SEN4 : CAM MODE SENSOR

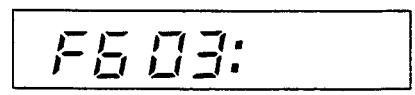
Mode	Monitor	Time counter
UNTHREAD END	ON ON ON	SEn4: 111
UNTHREAD END ~FR STOP	ON ON OFF	SEn4: 110
FR STOP	ON OFF OFF	SEn4: 100
FR STOP ~REEL BRAKE	ON OFF ON	SEn4: 101
REEL BRAKE	OFF OFF ON	SEn4: 001
THREAD END	OFF OFF OFF	SEn4: 000
THREAD END ~PINCH ON	OFF ON OFF	SEn4: 010
PINCH ON	OFF ON ON	SEn4: 011

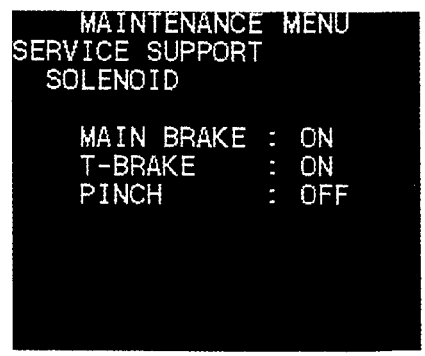
SOLENOID

Displays the various solenoid control status.
Change the item to be displayed on the time counter using the (↑), (↓) keys.
(Ex.)

Monitor	Time counter
MAIN BRAKE : ON T-BRAKE : ON PINCH : OFF	SOL : 110



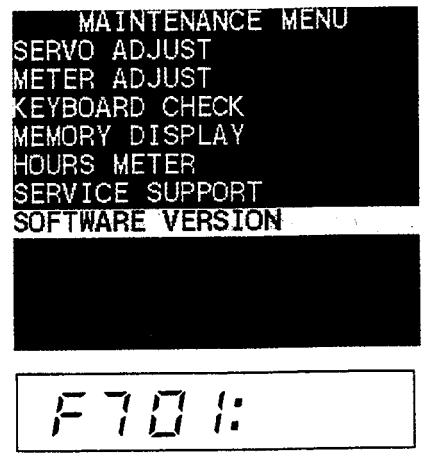


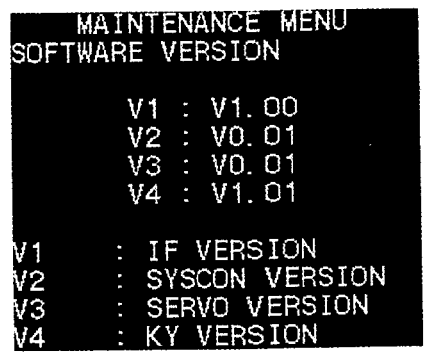


2-20-8. SOFTWARE VERSION

Displays the software version of the microprocessors.
Change the item to be displayed on the time counter using the (↑), (↓) keys.

Monitor	Time counter
V1 : V1.00	V1: 1.00
V2 : V0.01	V2: 0.01
V3 : V0.01	V3: 0.01
V4 : V1.01	V4: 1.01





2-21. MICROCOMPUTER MEMORY DISPLAY MODE

The data display mode (MEMORY DISPLAY of maintenance menu) for service is provided which allows the internal data and the input/output ports status of the microcomputer mounted in the VTR to be displayed on the video monitor. In this mode, the operation of the microcomputer and its peripheral circuit can be checked by operating the VTR.
This mode is applicable to the following three microcomputer.

- IF microcomputer (IC518/SS-58 board : μPD78054GC)
- SS microcomputer (IC101/SS-58 board : CXP87140)
- RS microcomputer (IC703/DR-266 board : μPD75108CW)

2-21-1. Activating/Terminating Method and Basic Operations.

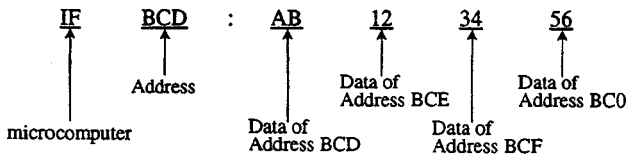
Refer to section 2-20-5. MEMORY DISPLAY.

2-21-2. Display Data and Explanation Display Examples

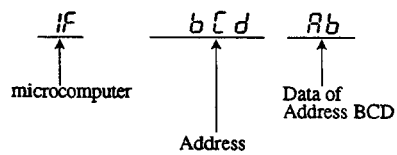
The data contents (8-bit data) are displayed in two hexadecimal numbers.

(Example)

- Video monitor



- Time counter



Display to Bit Data

	Upper 4 bits				Lower 4 bits			
Bit Number	7	6	5	4	3	2	1	0
Bit State (Example)	1	0	1	0	1	0	1	1
Display (Example)	A				B			

Correspondence Table of Upper/Lower 4 Bits to Display

4 bits				Display
0	0	0	0	0
0	0	0	1	1
0	0	1	0	2
0	0	1	1	3
0	1	0	0	4
0	1	0	1	5
0	1	1	0	6
0	1	1	1	7

4 bits				Display
1	0	0	0	8
1	0	0	1	9
1	0	1	0	A
1	0	1	1	B
1	1	0	0	C
1	1	0	1	D
1	1	1	0	E
1	1	1	1	F

2-21-3. Outline of Memory Display

1. IF microcomputer (IC518/SS-58 board)

Address	Data Contents (in hexadecimal notation)	Microprocessor I/O port	
C08	Key Input Status (1)		
C09	Remote Control Key Input Status (1)		
C0A	Remote Control Key Input Status (2)		
C0D	Key Input Status (2)		
C0E	Key Input Status (3)		
C0F	Key Input Status (4)		
C11	Tracking Control VR Position Status		
C16	LED Display Data		
C93~CA4	9pin Command Receive Buffer		
CA5~CB6	9pin Command Send Buffer		
DD9	Time Code Status		
F00	Peripheral Block Control (1)	IC518	P00 to P07 (INTP0~INTP4)
F01	Peripheral Block Control (2)		P10 to P17
F04	Peripheral Block Control (3)		P40 to P47
F05	Peripheral Block Control (4)		P50 to P57
F06	Peripheral Block Control (5)		P60 to P67

2. SS microcomputer (IC101/SS-58 board)

Address	Data Contents (in hexadecimal notation)	Microprocessor I/O port	
060	Servo Block Operation Commands		
061	Servo Block Status (1)		
0BA	Drum Servo Mode		
0BB	Capstan Servo Mode		
0C0	Servo Block Status (2)		
0C7	Noiseless Still Capstan FG Count		
0D5	Servo Reference Select Status		
0E2	Peripheral Block Control (1)	IC101	PC0 to PC4
0E3	Peripheral Block Control (2)		PD0 to PD7
0E4	Peripheral Block Control (3)		PE0 to PE7
0E5	Peripheral Block Control (4)		PF0 to PF7
0E7	Peripheral Block Control (5)		PH0 to PH7
0E9	Peripheral Block Control (6)		PJ0 to PJ7
100	Peripheral Block Control (7)		PPO04 to PPO07
101	Peripheral Block Control (8)		PPO08 to PPO15

3. RS microcomputer (IC706/DR-266 board)

Address	Data Contents (in hexadecimal notation)	Microprocessor I/O port	
0F8	Peripheral Block Control (1)	IC706	INT0 to INT3
0F9	Peripheral Block Control (2)		P20 to P23
0FA	Peripheral Block Control (3)		P40 to P43
0FB	Peripheral Block Control (4)		P60 to P63,P70 to P73
0FC	Peripheral Block Control (5)		P80 to P83,P90 to P93
0FD	Peripheral Block Control (6)		PTH01 to PTH03
0FE	Peripheral Block Control (7)		P120 to P123,P130 to P133
0FF	Peripheral Block Control (8)		P140 to P143

2-21-4. Details of Data Contents

1. IF microcomputer (Contents of input/output ports on the IC518/SS-58 board)

Address No.	Bit No.	Data Contents (In hexadecimal notation unless otherwise noted)	Microprocessor I/O port	Connection Companion
C08	7	1 : STOP KEY ON	IN/SI1 (IC518 ⑪) (Input as serial data)	KY board (IC101 ⑮)
	6	1 : EJECT KEY ON		
	5	1 : REW KEY ON		
	4	1 : F FWD KEY ON		
	3	1 : PAUSE KEY ON		
	2	1 : PLAY KEY ON		
	1	Always "0"		
	0	1 : REC KEY ON		
C09	7	1 : REMOTE STOP IN	IN/SI1 (IC518 ⑪) (Input as serial data)	KY board (IC101 ⑮) (Serial data from Remote Control Unit inputs to IC 101㊼ on KY board from front panel's REMOTE Connector via Q101 on KY board)
	6	1 : REMOTE EJECT IN		
	5	1 : REMOTE REW IN		
	4	1 : REMOTE F FWD IN		
	3	1 : REMOTE PAUSE IN		
	2	1 : REMOTE PLAY IN		
	1	Always "0"		
	0	1 : REMOTE REC IN		

Address No.	Bit No.	Data Contents (In hexadecimal notation unless otherwise noted)	Microprocessor I/O port	Connection Companion
C0A	7	1 : REMOTE FREEZE IN	IN/SI1 (IC518 ⑪) (Input as serial data)	KY board (IC101 ⑮) (Serial data from Remote Control Unit inputs to IC101 ㊼ on KY board from front panel's REMOTE Connector via Q101 on KY board)
	6	Always "0"		
	5	Always "0"		
	4	Always "0"		
	3	1 : REMOTE SHUTTLE IN		
	2	Always "0"		
	1	Always "0"		
	0	1 : REMOTE SHUTTLE FWD IN 0 : REMOTE SHUTTLE REV IN		
C0D	7	1 : TBC BYPASS SW ON	IN/SI1 (IC518 ⑪) (Input as serial data)	KY board (IC101 ⑮)
	6	1 : TBC LOCAL SW ON		
	5	1 : TBC REMOTE SW ON		
	4	1 : LTC SW ON		
	3	1 : AUTO SW ON		
	2	1 : VITC SW ON		
	1	1 : TRACKING METER ON 0 : AUDIO CH2 METER ON		
	0	1 : COUNTER RESET SW ON		
C0E	7	1 : TC SW ON	IN/SI1 (IC518 ⑪) (Input as serial data)	KY board (IC101 ⑮)
	6	1 : CTL SW ON		
	5	1 : UB SW ON		
	4	1 : INPUT SELECT S-VIDEO ON		
	3	1 : INPUT SELECT LINE ON		
	2	1 : INPUT SELECT BLACK ON		
	1	1 : INT ON 0 : EXT ON		
	0	1 : LOCAL ON 0 : REMOTE ON		

Address No.	Bit No.	Data Contents (In hexadecimal notation unless otherwise noted)	Microprocessor I/O port	Connection Companion
C0F	7	1 : MENU SW ON	IN/SI1 (IC518 ⑪) (Input as serial data)	KY board (IC101 ⑮)
	6	1 : RESET (NO) SW ON		
	5	1 : SET (YES) SW ON		
	4	1 : TC PRESET SW ON		
	3	1 : ⇧ SW ON		
	2	1 : ⇩ SW ON		
	1	1 : ⇦ SW ON		
	0	1 : ⇨ SW ON		
C11	—	Tracking Control Volume Position Indicate (Change 00 to FF, Center Value is 80±10)	IN/SI1 (IC518 ⑪) (Input as serial data)	KY board (IC101 ㉕) (Input as analog data)
C16	7	1 : STOP MODE	OUT/SO1 (IC518 ⑫) (Output as serial data)	KY board (IC101 ⑯)
	6	1 : EJECT MODE		
	5	1 : REW LED ON		
	4	1 : F FWD LED ON		
	3	1 : PAUSE LED ON		
	2	1 : PLAY LED ON		
	1	Always "0"		
	0	1 : REC LED ON		

Address No.	Bit No.	Data Contents (In hexadecimal notation unless otherwise noted)	Microprocessor I/O port	Connection Companion
C93 ~ CA4	——	9Pin Command Receive Buffer	——	——
CA5 ~ CB6	——	9Pin Command Send Buffer	——	——
DD9	7	0 : LTC DATA EXIST	——	——
	6	1 : LTC DATA ERROR	——	——
	5	0 : VITC DATA EXIST	——	——
	4	1 : VITC DATA ERROR	——	——
	3	Don't Care	——	——
	2	Don't Care	——	——
	1	Don't Care	——	——
	0	Don't Care	——	——

Address No.	Bit No.	Data Contents (In hexadecimal notation unless otherwise noted)	Microprocessor I/O port	Connection Companion
F00	7	Always "0"	——	——
	6	1 : AFM DET IN (AFM Detect in PB Mode)	IN/P06 (IC518 ⑰)	VA board (IC3 ㉜)
	5	Always "1"	IN/P05 (IC518 ⑯)	SS board (TP502)
	4	CTL PULSE IN (Count CTL Level)	IN/INTP4 (IC518 ⑮)	SS board (IC521 ㉒)
	3	1/2 VD IN (System Reference Pulse 1/2 VD Level)	IN/INTP3 (IC518 ⑭)	SS board (IC506 ②, IC510 ⑭, IC512 ①)
	2	1 : LTC SYNC WARD (LTC SYNC WARD Detect Pulse)	IN/INTP2 (IC518 ⑬)	SS board (IC517 ⑲)
	1	4VD IN (System Reference Pulse 4VD Level)	IN/P01 (IC518 ⑫)	SS board (IC101 ⑧)
	0	Always "1"	IN/INTP0 (IC518 ⑪)	——
F01	7	0 : VID IC SELECT (Communication Trigger with VID IC, Normally "1" is displayed)	OUT/P17 (IC518 ③)	VA board (IC833 ⑧, IC802 ㉒)
	6	1 : S-VHS OUT (S-VHS/VHS Mode Select)	OUT/P16 (IC518 ②)	VA board (Q701), VO board (Q10) RP board (Q100, Q101, Q102, Q109)
	5	1 : INT GEN, 0 : EXT IN (LTC Reader Input Select in REC Mode)	OUT/P15 (IC518 ①)	SS board (IC507 ⑨)
	4	1 : EXT IN, 0 : INT GEN (LTC Select in REC Mode)	OUT/P14 (IC518 ⑳)	SS board (IC508 ⑨)
	3	1 : REC LTC, 0 : PB LTC (Output LTC Select to Time code Out)	OUT/P13 (IC518 ⑲)	SS board (IC508 ⑩)
	2	1 : PB LTC, 0 : REC LTC (Input LTC Select to LTC Reader)	OUT/P12 (IC518 ⑱)	SS board (IC507 ⑩)
	1	0 : LTC OUT MUTE (TIME CODE Output Mute Control)	OUT/P11 (IC518 ⑰)	SS board (IC508 ⑪)
	0	0 : LTC READ MUTE (Input LTC to Reader Mute Control)	OUT/P10 (IC518 ⑯)	SS board (IC507 ⑪)

Address No.	Bit No.	Data Contents (In hexadecimal notation unless otherwise noted)	Microprocessor I/O port	Connection Companion
F04	7	1 : VIDEO EDIT ON (Video Edit Mode Control)	OUT/P47 (IC518 ㉖)	VA board (Q705, Q744) VO board (Q15, Q19, IC11 ㉗)
	6	1 : VIDEO AGC OFF (Video AGC Control)	OUT/P46 (IC518 ㉕)	VA board (IC522 ②)
	5	VIDEO INPUT SELECT Bit 5 / Bit 4 / Selected Input 0 0 LINE 0 1 S-VIDEO 1 0 LINE 1 1 BLACK	OUT/P45 (IC518 ㉔)	VA board (IC521 ②, IC523 ②)
	4		OUT/P44 (IC518 ㉓)	VA board (Q522) VO board (Q411)
	3	1 : HiFi INPUT SELECT (NORMAL/HiFi Input Select)	OUT/P43 (IC518 ㉒)	CP board (Q1)
	2	1 : VIDEO MUTE (Video Mute Control)	OUT/P42 (IC518 ㉑)	VA board (Q830, IC832 ④, IC831 ④) VO board (Q413)
	1	0 : DOLBY NR ON (DOLBY NR Control)	OUT/P41 (IC518 ⑳)	VA board (IC102 ⑤, IC202 ⑤)
	0	0 : AUDIO LIMITER ON (Audio Limiter Control)	OUT/P40 (IC518 ⑲)	VA board (Q105, Q205)
F05	7	0 : TIME CODE, 1 : AUDIO (Audio CH2 Select)	OUT/P57 (IC518 ㉟)	VA board (Q2, Q5)
	6	1 : EXT TBC CONTROL ON (TBC Control INT/EXT Select)	OUT/P56 (IC518 ㉞)	MB board (Q101)
	5	1 : EXT DNR ON (TBC REMOTE DNR Command)	IN/P55 (IC518 ㉜)	MB board (CN403 ⑪)
	4	0 : EXT FREEZE ON (TBC REMOTE FREEZE Command)	IN/P54 (IC518 ㉛)	MB board (CN403 ⑩)
	3	0 : EE-PROM SELECT (Communication Trigger with EE-PROM, Normally "1" is displayed)	OUT/P53 (IC518 ㉚)	MB board (IC101 ④)
	2	0 : EE-PROM WRITE MODE (EE-PROM Status, Normally "1" is displayed)	IN/P52 (IC518 ㉙)	MB board (IC101 ②)
	1	0 : IC521 WRITE MODE (IC521 Status, Normally "1" is displayed)	IN/P51 (IC518 ㉘)	SS board (IC521 ⑯)
	0	0 : IC521 SELECT (Communication Trigger with IC521, Normally "1" is displayed)	OUT/P50 (IC518 ㉗)	SS board (IC521 ⑮)

Address No.	Bit No.	Data Contents (In hexadecimal notation unless otherwise noted)	Microprocessor I/O port	Connection Companion
F06	7	1 : IC517 BUSY (IC517 Status, Normally "1")	IN//P67 (IC518 ㊸)	SS board (IC517 ㉑)
	6	1 : VITC REC ON (IC515 VITC Mode Control)	OUT/P66 (IC518 ㊷)	SS board (IC515 ⑦)
	5	1 : NTSC 0 : PAL	IN/P65 (IC518 ㊶)	——
	4	0 : S-DC DET (S-VIDEO INPUT WIDE Signal Detect)	IN/P64 (IC518 ㊵)	CP board (Q10)
	3	0 : LAU LINE OUT (Signal Select to NORMAL/$\overline{\text{Hi-Fi}}$ Terminal)	IN/P63 (IC518 ㊴)	VA board (IC301 ①, IC401 ①)
	2	1 : BLANKING ON (REC Blanking Control)	IN/P62 (IC518 ㊳)	SS board (IC515 ⑥)
	1	0 : SYNC DET (SYNC Signal Detect)	IN/P61 (IC518 ㊲)	VA board (IC833 ㉚, Q807)
	0	0 : S-DC ON (S-VIDEO OUTPUT WIDE Command)	OUT/P60 (IC518 ㊱)	VA board (Q901, Q902)

2. SS microcomputer (Contents of input/output ports on the IC101/SS-58 board)

Address NO.	Bit NO.	Data Contents (In hexadecimal notation unless otherwise noted)	Microprocessor I/O Port	Connection Companion
060	7	SERVO DIRECTION (0 : REV, 1 : FWD)	—	—
	6	Always "0"	—	—
	5	1 : PLAY COMMAND	—	—
	4	1 : REC COMMAND	—	—
	3	1 : PAUSE COMMAND	—	—
	2	1 : SEARCH COMMAND	—	—
	1	1 : Total Tape volume estimation Command	—	—
	0	1 : SERVO ENABLE	—	—
061	7	Always "0"	—	—
	6	1 : VIDEO IN DETECT	—	—
	5	1 : CTL EXIST	—	—
	4	1 : NOISELESS STILL ON	—	—
	3	1 : CAPSTAN STOP	—	—
	2	1 : DRUM STOP	—	—
	1	1 : CAPSTAN LOCK	—	—
	0	1 : DRUM LOCK	—	—
0BA	—	Drum Servo Mode State Indication 00 : OFF MODE 01 : NORMAL MODE 02 : AFC MODE		
0BB	—	Capstan Servo Mode State Indication 00 : OFF MODE 01 : REC MODE 02 : PLAY MODE 03 : PINCH OFF MODE 04 : NOISELESS MODE 05 : SYNCRO MODE 06 : SEARCH SLOW MODE 07 : SEARCH MODE 08 : INSTANT START MODE 09 : PAUSE MODE 0A : COLOR FRAME MODE (PAL only)		

Address NO.	Bit NO.	Data Contents (In hexadecimal notation unless otherwise noted)	Microprocessor I/O Port	Connection Companion
0C0	7	Always "0"		
	6	Always "0"		
	5	Always "0"		
	4	1 : YNG MODE	—	—
	3	Always "0"		
	2	1 : QUASI-VD ON	—	—
	1	1 : TBC SYNC DELAY MODE	—	—
	0	1 : TBC BYPASS MODE	—	—
0C7	—	Noiseless Still FG Count NTSC FWD : 32 to 35/0E to 11 REV : 32 to 35/0E to 11 PAL FWD : 2B to 2E/0D to 10 REV : 2A to 2D/0C to 0E		
0D5	—	Servo Reference Select State Indication 01 : INTERNAL (with VIDEO IN) 02 : INTERNAL (with REFERENCE) 03 : INTERNAL (TBC ON) 10 : VIDEO IN SELECT 20 : REFERENCE IN SELECT 30 : TBC SYNC SELECT		

Address NO.	Bit NO.	Data Contents (In hexadecimal notation unless otherwise noted)	Microprocessor I/O Port	Connection Connection
0E2	7	Always "0"	—	—
	6	Always "0"	—	—
	5	Always "0"	—	—
	4		OUT/PC4 (IC101 ⑩)	SS board (Q105)
	3	1 : AFM MUTE (Hi-Fi MUTE Control)	OUT/PC3 (IC101 ⑪)	VA board (IC3 ⑦)
	2	1 : SW MASK ON (TBC SW MASKING Control)	OUT/PC2 (IC101 ⑫)	TBC board (IC104 ②)
	1	1 : TBC EE (TBC EE MODE Control)	OUT/PC1 (IC101 ⑬)	VO board (IC351 ②, Q31, IC952 ④)
	0	1 : VIDEO EE, 0 : VIDEO PB (VIDEO EE/PB Control)	OUT/PC0 (IC101 ⑭)	VA board (IC801 ㉓)
0E3	7	0 : Error Detection Signal Mute	IN/PD7 (IC101 ㉓)	SS board (S101 NO.8)
	6	Don't Care	IN/PD6 (IC101 ㉔)	SS board (S101 NO.7)
	5	0 : PB by REC SERVO (Capstan Control Change)	IN/PD5 (IC101 ㉕)	SS board (S101 NO.6)
	4	0 : INSTANT START OFF (Capstan Control Change)	IN/PD4 (IC101 ㉖)	SS board (S101 NO.5)
	3	0 : FORCE EDIT MODE ON (REFERENCE SELECT Change)	IN/PD3 (IC101 ㉗)	SS board (S101 NO.4)
	2	0 : MAINTENANCE MODE ON	IN/PD2 (IC101 ㉘)	SS board (S101 NO.3)
	1	Don't Care	IN/PD1 (IC101 ㉙)	SS board (S101 NO.2)
	0	0 : TAPE TOP/END Sensor Mute	IN/PD0 (IC101 ㉚)	SS board (S101 NO.1)
0E4	7	1 : MAIN ROUTINE WORK PULSE (Always, "1" is displayed)	OUT/PE7 (IC101 ⑦①)	SS board (TP110)
	6	—	—	—
	5	1 : SERVO LOCK (IC605 Control (PAL only))	OUT/PE5 (IC101 ⑦③)	SS board (IC605 ⑰)
	4	0 : CAPSTAN FWD (CAPSTAN Direction Command)	OUT/PE4 (IC101 ⑦④)	DR board (IC509 ③)
	3	CAPSTAN PWM (Data is variable. STOP mode : 0)	OUT/PWM1 (IC101 ⑦⑤)	SS board (IC103 ③)
	2	DRUM PWM (Data is variable. STOP mode : 0)	OUT/PWM0 (IC101 ⑦⑥)	SS board (IC103 ⑤)
	1	1 : CAPSTAN FWD DFT (CAPSTAN Direction Detect)	IN/PE1 (IC101 ⑦⑦)	SS board (IC305 ⑫)
	0	1 : SYNCRO IN (IC605 CF Detect (PAL only))	IN/PE0 (IC101 ⑦⑧)	SS board (IC605 ㉒)

Address NO.	Bit NO.	Data Contents (In hexadecimal notation unless otherwise noted)	Microprocessor I/O Port	Connection Companion
0E5	7	1 : FULL ERASE ON (FULL ERASE Control)	OUT/PF7 (IC101 ㊽)	SS board (Q404, IC512 ⑩) MB board (Q207)
	6	1 : LOADING MOTOR ON (Loading Motor ON/OFF Control)	OUT/PF6 (IC101 ㊾)	MB board (IC201 ④)
	5	0 : CASSECON MOTOR ON (Cassette Compartment Motor ON/OFF Control)	OUT/PF5 (IC101 ㊿)	MB board (IC201 ⑤)
	4	1 : CW, 0 : CCW (LOAD/CASSECON Motor Rotational Direction Control)	OUT/PF4 (IC101 51)	MB board (IC201 ⑥)
	3	1 : S-VHS DET (S-VHS Detect in PB Mode)	IN/PF3 (IC101 ㊺)	RP board (Q104, Q106, Q204)
	2	CAM MODE 3 (Mechanical Cam Mode Position Detect)	IN/PF2 (IC101 ㊻)	PTC board (PH1 ③) (Via Q109 on SS board)
	1	CAM MODE 2 (Mechanical Cam Mode Position Detect)	IN/PF1 (IC101 ㊼)	PTC board (PH2 ③) (Via Q108 on SS board)
	0	CAM MODE 1 (Mechanical Cam Mode Position Detect)	IN/PF0 (IC101 ㊽)	PTC board (PH3 ③) (Via Q107 on SS board)
0E7	7	0 : STOP SERVO ON (Capstan Stop Control)	OUT/PH7 (IC101 31)	DR board (IC509 ⑨, ⑩)
	6	1 : NORMAL FWD (IC605 Control (PAL only))	OUT/PH6 (IC101 32)	SS board (IC605 ⑧)
	5	1 : CH2 REC ON (Audio CH2 REC Control)	OUT/PH5 (IC101 33)	VA board (IC201 ②)
	4	1 : CH1 REC ON (Audio CH1 REC Control)	OUT/PH4 (IC101 34)	VA board (IC101 ②)
	3	1 : EP SELECT (1st FIELD STILL)	OUT/PH3 (IC101 35)	RP board (Q103, IC100 ⑰)
	2	1 : TRANJENT PULSE (FWD ⟷REV Change)	OUT/PH2 (IC101 36)	DR board (IC401 ⑥, ⑦, IC403 ①, IC405 ②, IC408 ②)
	1	EP/SP HEAD Select Control Bit1 / Bit0 / Mode 0 / 0 / PLAY/REC 0 / 1 / PAUSE/STILL 1 / 0 / PAUSE/STILL 1 / 1 / SEARCH	OUT/PH1 (IC101 37)	RP board (IC100 ㉒)
	0		OUT/PH0 (IC101 38)	

Address NO.	Bit NO.	Data Contents (In hexadecimal notation unless otherwise noted)	Microprocessor I/O Port	Connection Companion
0E9	7	1 : MASTER OSC ON (Audio Master OSC Control)	OUT/PJ7 (IC101 ⑮)	VA board (Q14, Q114, Q214)
	6	0 : CASSETTE DOWN (Cassette Compartment Down Position Detect)	IN/PJ6 (IC101 ⑯)	HN board (S1)
	5	1 : CIN, 0 : MISS REC (Cassette In or Miss Rec Detect)	IN/PJ5 (IC101 ⑰)	SW board (S2)
	4	1 : CAPSTAN FG(A), 0 : CAPSTAN FG(B) (Capstan FG Control Select)	OUT/PJ4 (IC101 ⑱)	SS board (IC309 ⑪)
	3	1 : TBC SYNC, 0 : REF SYNC (Drum Reference Select)	OUT/PJ3 (IC101 ⑲)	SS board (IC309 ⑨)
	2	1 : REFERENCE, 0 : VIN (Drum Reference Select)	OUT/PJ2 (IC101 ⑳)	SS board (IC309 ⑩)
	1	0 : REFERENCE VIDEO EXIST (REF VIDEO IN Input Detect)	OUT/PJ1 (IC101 ㉑)	SS board (IC310 ⑨)
	0	0 : VIDEO IN EXIST (VIDEO IN Input Detect)	IN/PJ0 (IC101 ㉒)	SS board (IC310 ⑦)
100	7	0 : AFM EE (Hi-Fi EE/PB Control)	OUT/PPO07 (IC101 ㉛)	RP board (Q302) VA board (IC3 ㊵)
	6	1 : AFM REC CURRENT ON (Hi-Fi Rec Current ON/OFF Control)	OUT/PPO06 (IC101 ㉜)	RP board (Q301, IC300 ③)
	5	0 : V REC CURRENT ON (Video Rec Current ON/OFF Control)	OUT/PPO05 (IC101 ㉝)	RP board (Q102, IC100 ㉑)
	4	1 : FE ON (Flying Erase ON/OFF Control)	OUT/PPO04 (IC101 ㉞)	RP board (Q201)
	3	—	—	—
	2	—	—	—
	1	—	—	—
	0	—	—	—
101	7	1 : V REC MODE ON (RP REC MODE Control)	OUT/PPO15 (IC101 ㊴)	RP board (Q254, Q117)
	6	1 : REC STANDBY ON (VIDEO REC MODE Control)	OUT/PPO14 (IC101 ㊱)	VO board (Q11, IC101 ②, Q15, IC11 ㊳, Q103, Q26, Q37, Q201, Q350, IC201 ⑭, ⑮, IC202 ②, IC351 ②, Q364, IC500 ②)
	5	1 : CH2 ERASE ON (AUDIO CH2 ERASE Control)	OUT/PPO13 (IC101 ①)	VA board (Q222)
	4	1 : CH1 ERASE ON (AUDIO CH1 ERASE Control)	OUT/PPO12 (IC101 ②)	VA board (Q122)
	3	1 : CH2 BIAS ON (AUDIO CH2 BIAS Control)	OUT/PPO11 (IC101 ③)	VA board (Q14, Q214)
	2	1 : CH1 BIAS ON (AUDIO CH1 BIAS Control)	OUT/PPO10 (IC101 ④)	VA board (Q14, Q114)
	1	1 : CH2 EE ON (AUDIO CH2 EE/PB Control)	OUT/PPO09 (IC101 ⑤)	VA board (Q201)
	0	1 : CH1 EE ON (AUDIO CH1 EE/PB Control)	OUT/PPO08 (IC101 ⑥)	VA board (Q101)

3. RS microcomputer (Contents of input/output ports on the IC706/DR-266 board)

Address No.	Bit No.	Data Contents (In hexadecimal notation unless otherwise noted)	Microprocessor I/O port	Connection Companion
0F8	7	1 : TAPE END (When "H" Pulse is detected)	IN/INT3 (IC703 ①)	MD TAPE END SENSOR
	6	1 : TAPE TOP (When "H" Pulse is detected)	IN/INT2 (IC703 ②)	MD TAPE TOP SENSOR
	5	TOP/END PULSE IN (TOP/END SENSOR Interrupt Input Port)	IN/INT1 (IC703 ③)	MD TOP/END SENSOR
	4	0 : REEL SELECT (Communication RS Microprcessor Select)	IN/INT0 (IC703 ④)	SS board (IC101 ⑧③)
	3	Serial DATA IN	IN/SI (IC703 ⑮)	SS board (IC101 ⑧⓪)
	2	Serial DATA OUT	OUT/SO (IC703 ⑯)	SS board (IC101 ⑦⑨)
	1	Serial CLOCK	OUT/SCK (IC703 ⑰)	SS board (IC101 ⑧①)
	0	GND Terminal	IN/POO/INT (IC703 ⑱)	DR-266 board (GND)
0F9	7	5V	P33 (IC703 ㉝)	5V
	6	GND	P32 (IC703 ㉞)	GND
	5	GND	P31 (IC703 ㉟)	GND
	4	N.C	P30 (IC703 ㊱)	N.C
	3	1 : T-REEL STATUS FOWARD (T-Reel Direction Status)	IN/P23 (IC703 ⑪)	DR-266 board (IC701 ⑫) SS board (IC512 ⑤)
	2	0 : T-REEL STATUS STOP (T-Reel Stop Status)	IN/P22 (IC703 ⑫)	DR-266 board (IC702 ⑥)
	1	1 : S-REEL STATUS FOWARD (S-Reel Direction Status)	IN/P21 (IC703 ⑬)	DR-266 board (IC701 ②)
	0	0 : S-REEL STATUS STOP (S-Reel Stop Status)	IN/P20 (IC703 ⑭)	DR-266 board (IC702 ⑩)
0FA	7	N.C	P53 (IC703 ㊶)	N.C
	6	N.C	P52 (IC703 ㊷)	N.C
	5	N.C	P51 (IC703 ㊸)	N.C
	4	N.C	P50 (IC703 ㊹)	N.C
	3	N.C	P43 (IC703 ㊲)	N.C
	2	1 : MORE THAN×2 OUT (VIDEO GAIN UP "H" Fixed)	OUT/P42 (IC703 ㊳)	VO board (Q522, Q536) VA board (Q103 ⑤, Q203 ⑤)
	1	1 : SYNC DELAY ON OUT (SYNC DELAY Control)	OUT/P41 (IC703 ㊴)	TBC board (IC304 ⑨)
	0	1 : LAU MUTE OUT (Longitude AUDIO MUTE Control)	OUT/P40 (IC703 ㊵)	VA board (IC101 ⑫, IC201 ⑫)

Address No.	Bit No.	Data Contents (In hexadecimal notation unless otherwise noted)	Microprocessor I/O port	Connection Companion
0FB	7	N.C		
	6	1 : FWD TENSION OUT (TENSION LOOP Frequency Response Select for FWD/REV)	OUT/P72 (IC703 ㊸)	DR-266 board (Q409)
	5	1 : PINCH HOLD OUT (Pinch Roller Solenoid Hold Control)	OUT/P71 (IC703 ㊹)	MD Pinch Solenoid
	4	1 : PINCH START OUT (Pinch Roller Solenoid ON/OFF Control)	OUT/P70 (IC703 ㊺)	MD Pinch Solenoid
	3	N.C	P63 (IC703 ㊽)	N.C
	2	D/A Converter Load Pulse	OUT/P62 (IC703 ㊾)	DR-266 board (IC704 ②)
	1	D/A Serial Clock		DR-266 board (IC704 ③)
	0	D/A Serial DATA		DR-266 board IC704 ④)
0FC	7	N.C	P93 (IC703 ㊵)	N.C
	6	0 : PINCH ON OUT (PINCH ON COMMAND)	OUT/P92 (IC703 ㊶)	SS board (IC506 ③)
	5	N.C	P91 (IC703 ㊷)	N.C
	4	1 : T-REEL BRAKE ON OUT (T-REEL Brake Control)	OUT/P90 (IC703 ㊸)	DR-265 board (Q218)
	3	0 : T CUR MODE OUT (T-REEL Current/Voltage Mode Control)	OUT/P83 (IC703 ㊻)	DR-266 board (Q412)
	2	0 : T-REEL CW OUT (T-REEL Rotational Command)	OUT/P82 (IC703 ㊼)	MD T-Reel Motor
	1	0 : S-REEL CW OUT (S-REEL Rotational Command)	OUT/P81 (IC703 ㊽)	MD S-Reel Motor
	0	H : MAIN BRAKE ON OUT (Main Brake Control)	OUT/P80 (IC703 ㊾)	MD Main Brake

Address No.	Bit No.	Data Contents (In hexadecimal notation unless otherwise noted)	Microprocessor I/O port	Connection Companion
0FD	3	Always "1"	IN/PTH03 (IC703 ⑤)	SS board (IC101 ㉝)
	2	Always "1"	IN/PTH02 (IC703 ⑥)	SS board (IC101 ㉝)
	1	1 : TENREG LED OPEN (Tension Regurator LED Broken Detect)	IN/PTH01 (IC703 ⑦)	MD TENREG LED
	0	1 : TOP/END LED OPEN (TOP/END Sensor LED Broken Detect)	IN/PTH00 (IC703 ⑧)	MD TOP/END LED
0FE	7	N.C	P133 (IC703 ㉓)	N.C
	6	0 : TRQ MUTE (Reel Torque Mute Command at Power-on)	OUT/P132 (IC703 ㉔)	DR-266 board (Q400, Q408)
	5	0 : APC GAIN UP (VIDEO APC GAIN UP Control)	OUT/P131 (IC703 ㉕)	VO board (Q536)
	4	1 : TBC ON (TBC ON/OFF Control)	OUT/P130 (IC703 ㉖)	TBC board (IC608 ②, IC605 ②)
	3	TOP/END LED PULSE	OUT/P123 (IC703 ⑲)	HN board (D1)
	2	1 : TENSION MUTE OUT (Tension Mute Control)	OUT/P122 (IC703 ⑳)	DR-266 board (Q404)
	1	0 : TENSION FEED BACK OUT (TENSION/REEL D/A Mode Control)	OUT/P121 (IC703 ㉑)	DR-266 board (IC403 ⑨)
	0	1 : S CUR MODE OUT (S-REEL Current/Voltage Mode Control)	OUT/P120 (IC703 ㉒)	DR-266 board (IC403 ⑪)
0FF	3	Always "1"	IN/P143 (IC703 ㉗)	SW-673 VA board (Q17, Q19)
	2	0 : CAM LED OPEN (Cam Mode Sensor LED Broke Detect)	IN/P142 (IC703 ㉘)	PTC board (PH3 ①)
	1	1 : VHS CASSETE IN (VHS/S-VHS Cassette Detect)	IN/P141 (IC703 ㉙)	SW-673 VA board (Q17, Q19)
	0	Always "1"	IN/P140 (IC703 ㉚)	SW-673 VA board (Q17, Q19)

SECTION 3
PERIODIC INSPECTION AND MAINTENANCE

It is recommended that you carry out the following periodic checks and maintenance in order to obtain good performance and ensure a long life for the unit and tape. Use the hours-meter value displayed on the monitor screen and the time counter display as a guide for determining the check timing.

3-1. MAINTENANCE AFTER REPAIRS

Carry out the following maintenance after repair without regard to the operating hours of the unit.

(1) Cleaning Rotary Upper Drum
Press a cleaning cloth moistened with cleaning fluid lightly against Rotary Upper Drum and turn the Rotary Upper Drum slowly counterclockwise by means of a hand.

Note : Never turn the Drum by means of the unit is switched. Never turn it clockwise by means of a hand. If cleaning head chip, never move the cleaning cloth in vertical direction. You damage the head chip.

(2) Cleaning the tape path system (Refer to the next page.)
Clean the tape path system (guides TG-1 to TG-9, RVS guide, F•R guide, capstan shaft, pinch roller, audio head, and FE head) with a cleaning piece moistened with cleaning fluid.

(3) Cleaning the drive system
Clean the surface of the reel table with a cleaning piece moistened with cleaning fluid.

3-2. HOURS METER

The monitor and the time counter display of this VTR can display the cumulative total operating hours or total operating number of following four display modes.

T1 : DRUM ROTATION-1 mode
Cumulative total of hours of drum rotation with tape threaded.

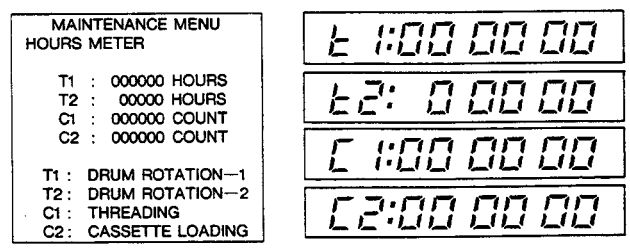
T2 : DRUM ROTATION-2 mode (Resettable)
Cumulative total of hours of drum rotation with tape threaded.

C1 : THREADING mode (Resettable)
Cumulative number of tape threading/unthreading operations.

C2 : CASSETTE LOADING mode (Resettable)
Cumulative total of hours of tape transport operation.

• Procedure of displaying hours meter

1) Hold down the (←) key and press the MENU key to open the maintenance menu.
2) Press the (→) key to select HOURS METER from the menu displayed on the monitor screen. All four modes are displayed on the monitor screen, and one of them is displayed on the time counter display.

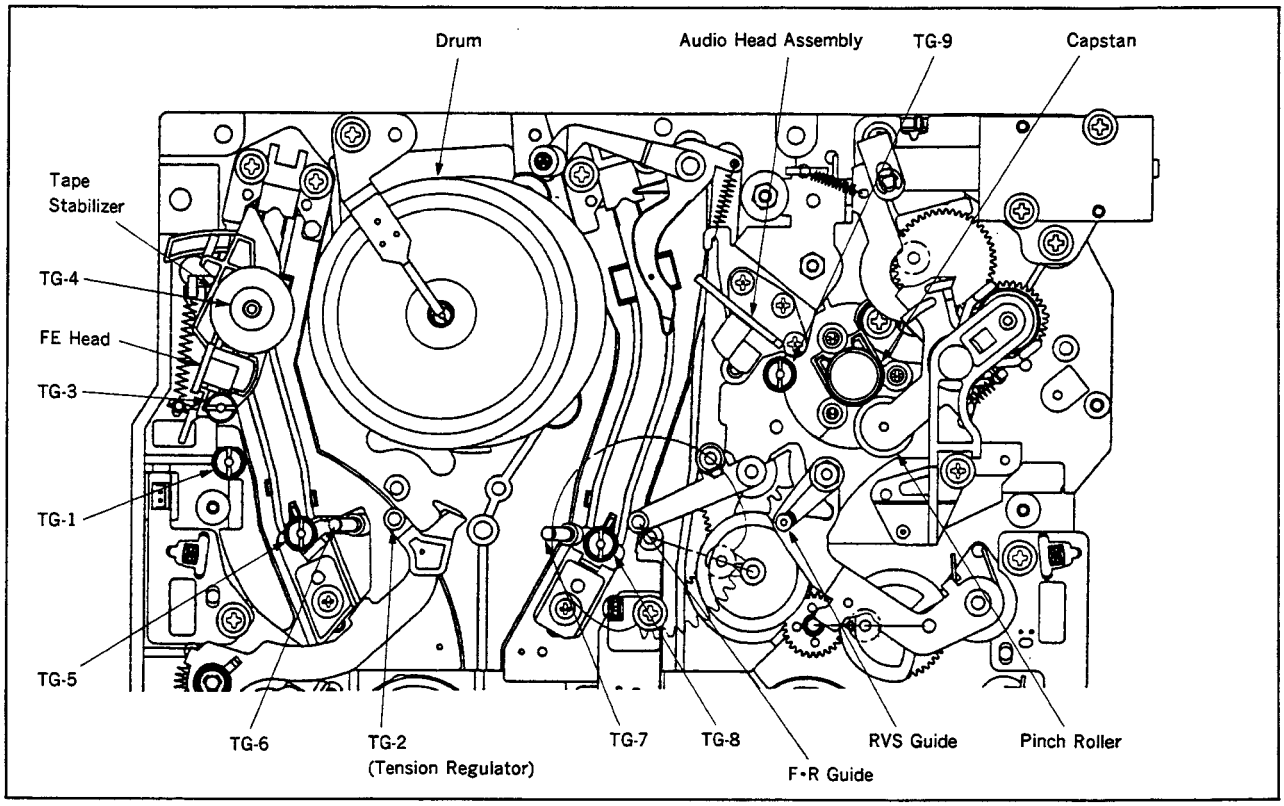


Monitor Screen　　Time Counter Display

3) Press the (↓) (↑) keys to select the display on the time counter display.
4) Press the MENU key to end the hours meter display.

3-3. PERIODIC CHECK

Carry out periodic checks and maintenance according to operating hours of the unit.



Periodic Check Table

○: Cleaning ◆: Replacement ◇: Checking □: Greasing

Item			Hours of use (H): Hour of Drum Rotation										Reference Section
	Part Name	Part No.	500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	
Tape Run System	Tape Run surface	—	○	○	○	○	○	○	○	○	○	○	—
	(Note 1) Pinch Roller Block Ass'y	A-6750-279-D	○	○	○	◆/□	○	○	○	◆/□	○	○	4-12
	Audio (SVO-5800) Head Ass'y (SVP-5600)	A-8262-502-A A-6736-092-A	○	○	○	○	○	○	○	◆	○	○	4-10
	Guide Roller Ass'y	X-3165-337-1								◆			4-25,4-27
	Shaft Ground Ass'y	X-3165-584-1								◆			4-4
	FE Head (SVO-5800)	1-543-695-11	○	○	○	○	○	○	○	◆	○	○	4-8
	Capstan Motor (SCV-0401A)	8-835-480-02	○	○	○	○	○	○	○	◆	○	○	4-30
	Upper Drum Ass'y (DZR-69-R)	8-848-629-01	○	◆	○	◆	○	◆	○		○	◆	4-4
	Drum Ass'y (DZH-69A-R)	8-848-628-11	○	○	○	○	○	○	○	◆	○	○	4-5
Drive System	Brake Arm (S) Ass'y	X-3165-330-3								◆			4-18
	Brake Arm (T) Ass'y	X-3165-331-2								◆			4-18
	Reel Table Ass'y	X-3165-345-3				○				○			4-17
	LDB Arm Ass'y	X-3166-511-1								◆			4-32
	Cleaning Roller Ass'y	X-3743-515-4				◆				◆			4-3
	Reel Moter (SRV-0202A)	8-835-501-01								◆			4-19
	(Note 1) Loading Gear (Right) Ass'y	A-6750-281-A				□				□			4-22
	(Note 1) Worm Gear (Cam Motor Ass'y)	3-733-395-01				□				□			3-5
	(Note 1) Worm Gear (Cassette Compartment)	3-736-100-01				□				□			3-5
	(Note 1) Shuttle Slide Surface	—				□				□			3-5
Check Performance	Abnormal-noise	—	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	—
	S side Tape Tension Measurement	—		◇		◇		◇		◇		◇	5-2,6-2
	Reel Table torque Measurement	—				◇				◇			5-1

Note 1: Grease the VTR referring to Sec. 3-5.

Note 2: The period shown in the table is not a guarantee value. The parts replacement period differs depending on the environment in which the VTR is used, so take the operating environment into consideration when drawing up a maintenance and check plan.

Note 3: Be sure to clean the tape run surface after repairing it.

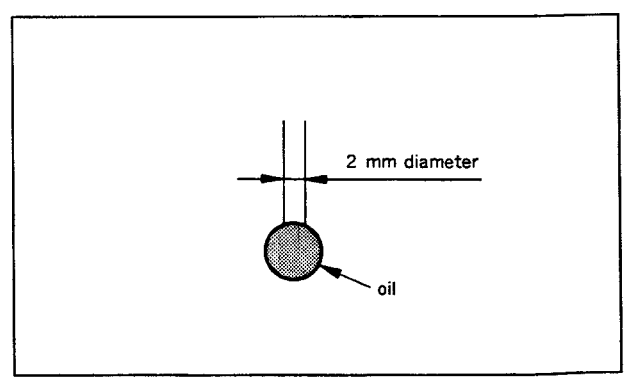
Note 4: It is recommended that you periodically clean the cassette tape entrance and the face touched a cassette tape of the cassette compartment when the VTR is mounted in a cassette auto changer (BFC-1).

3-4. OILING

Oiling is described in 「SECTION 4. REPLACEMENT OF MECHANICAL PARTS」 for the applicable parts.

(1) Sony oil

- Be sure to use Sony oil. (If another brand of oil is used, the viscosity will be different, leading to trouble.)
  Sony oil : Sony part No. 7-661-018-18
- Be sure that the Sony oil used to lubricate the bearings is free of dirt and other foreign matter. (If the oil contains dirt, the bearings are liable to seize and also wear will be accelerated.)
- One drop of oil means a drop on the end of a rod of 2mm diameter (See figure).



3-5. GREASING

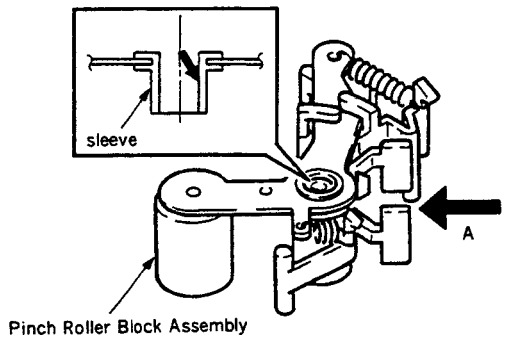
(1) Periodically grease the following parts.
- The face that slides against the cam of the pinch roller block ass'y (Fig. 1)
- The face that slides against the loading gear (right) ass'y (Fig. 2)
- The face that slides against the shuttle (left)/(right) ass'y (Fig. 3)
- Cam motor ass'y worm gear (Fig. 4)
- Cassette compartment worm gear (Fig. 5)

(2) Greasing
- Be sure to use the specified grease.
  MOLYKOTE grease EM-30LG (Color : green) :
  Sony part No. J-6090-014-A

or

MOLYKOTE grease EM-30L (Color : Colorless) :
DOW CORNING Corp.

Apply a small quantity of grease to the areas marked in the figure (shaded areas and other areas indicated by the arrows).



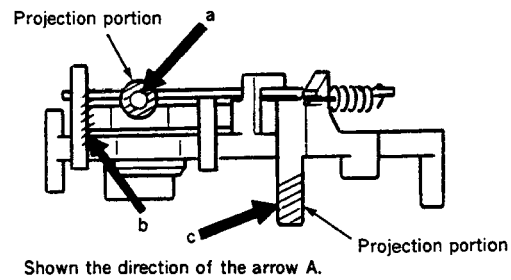


Fig. 1

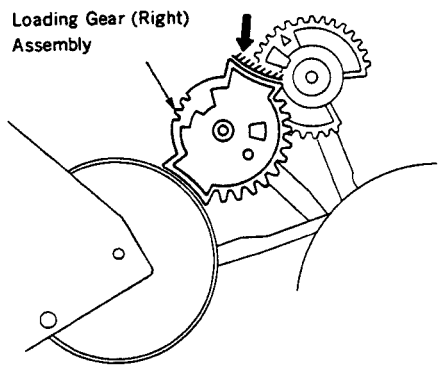


Fig. 2

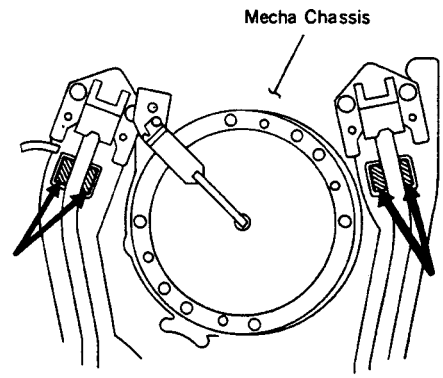


Fig. 3

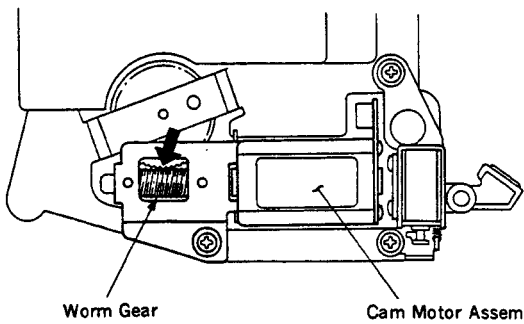


Fig. 4

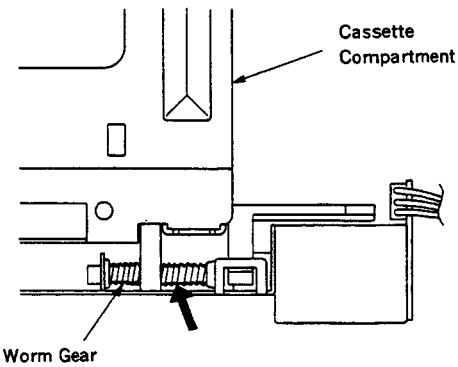


Fig. 5

SECTION 4
REPLACEMENT OF MECHANICAL PARTS

- Refer to Section 2 for details of removing the externals and the printed circuit boards.
- Re-install the various parts in the opposite sequence to removal, while referring to "Precautions for Installation".

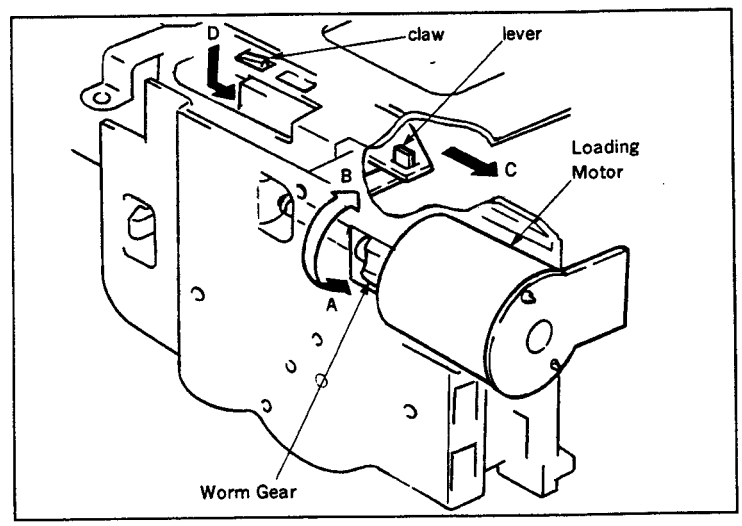
4-1. PREPARATIONS FOR REPLACING PARTS

- Do not load or thread a cassette when the VTR is inverted.

4-1-1. Method of loading and unloading the cassette compartment when the power is OFF

[Loading]
- Push the lever in the direction of arrow C and release the claw (direction of arrow D), then rotate the worm gear in the direction of arrow B with the fingers until loading is completed. (When a cassette tape is loaded in the cassette compartment, the claw will automatically release.)

[Unloading]
- Rotate the worm gear in the direction of arrow A with the fingers until unloading is completed.

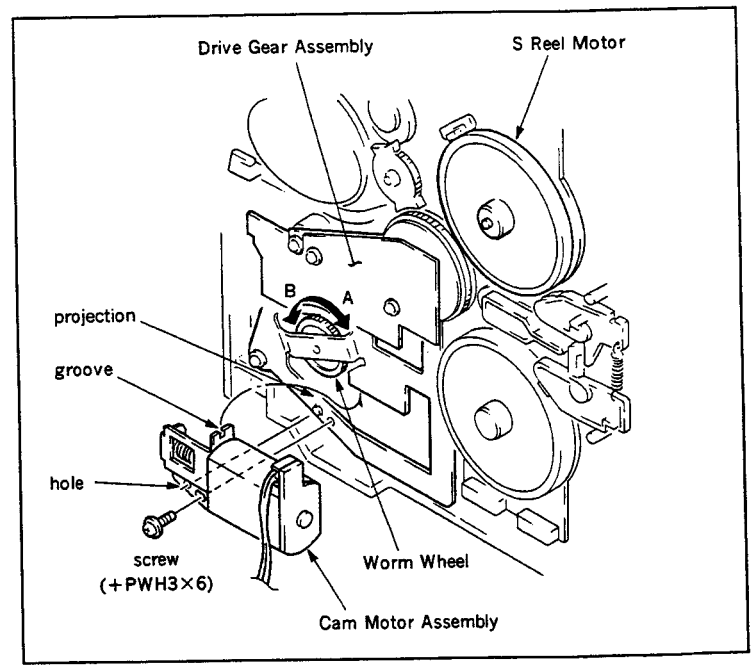


4-1-2. Method of threading and unthreading when the power is OFF

(1) Remove the screws, then remove the cam motor ass'y from the drive gear ass'y.

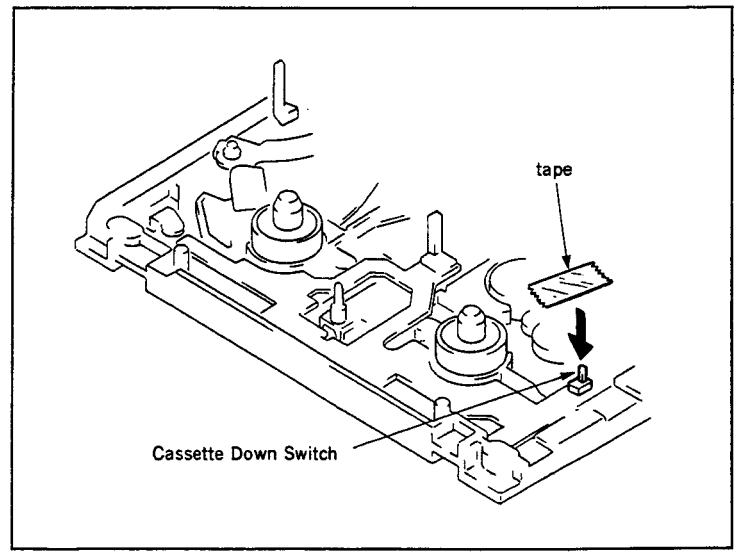
[Threading]
- Rotate the worm wheel with the fingers in the direction of arrow A until threading is completed.

[Unthreading]
- Rotate the worm wheel with the fingers in the direction of arrow B until unthreading is completed.



4-1-3. Method of operating the VTR without a cassette compartment or cassette tape

(1) Remove the cassette compartment referring to sub-section 2-6.
(2) Turn ON No. 1 switch of DIP switch S101/SS board (C-1). (This is to neutralize the tape top/end sensor function)
(3) Push down the CASSETTE DOWN switch with tape, etc.
(4) Turn the POWER switch ON.



In this condition, the VTR can be operated from the remote controller (RM-V200 or RM-V100 or SVRM-100)
[When changing the mode from PLAY to FF or REW, go via the STOP mode.]

Note : Be sure to turn No. 1 switch OFF after completion of operation.

[Operating the VTR with the cassette compartment removed and a cassette tape loaded]

- Be sure to turn OFF No. 1 switch of DIP switch S101.
  (If the DIP switch is turned ON, the tape will not stop at the tape top/end, resulting in possible damage to the head tip and deformation of the tape guide.)

4-1-4. How to get the best engaging phase of gears when replacing.

A hole and/or a mark is added on each gear in this mechanism deck so that the engaging phases of the gears are easy to get when assembling. When replacing gear, install it as shown below, also refer the figure 1 and 2. (The replacement should be performed on the STOP mode.)

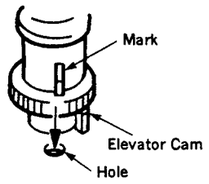
①	 Match the mark of the elevator cam and the hole of the chassis. (Ref. 4-13)
②	Match the holes of the pressure cam gear and the chassis. (Ref. 4-13)
③	Match the holes of RVS cam gear and the chassis. (Ref. 4-14)
④	Match the holes of FR drive gear and the mode gear. (Ref. 4-15)

Figure of mechanism : STOP mode without the cassette compartment.

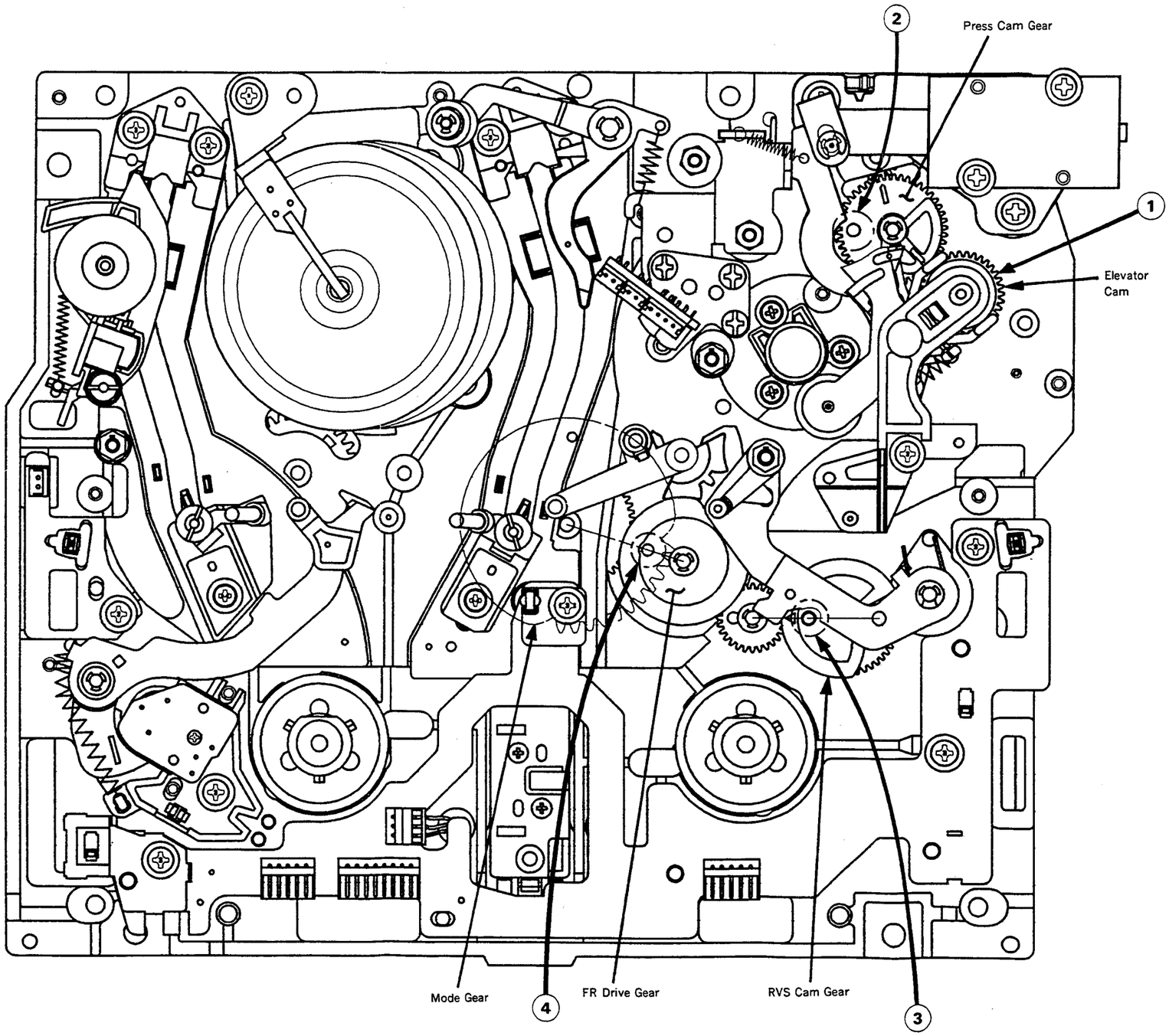
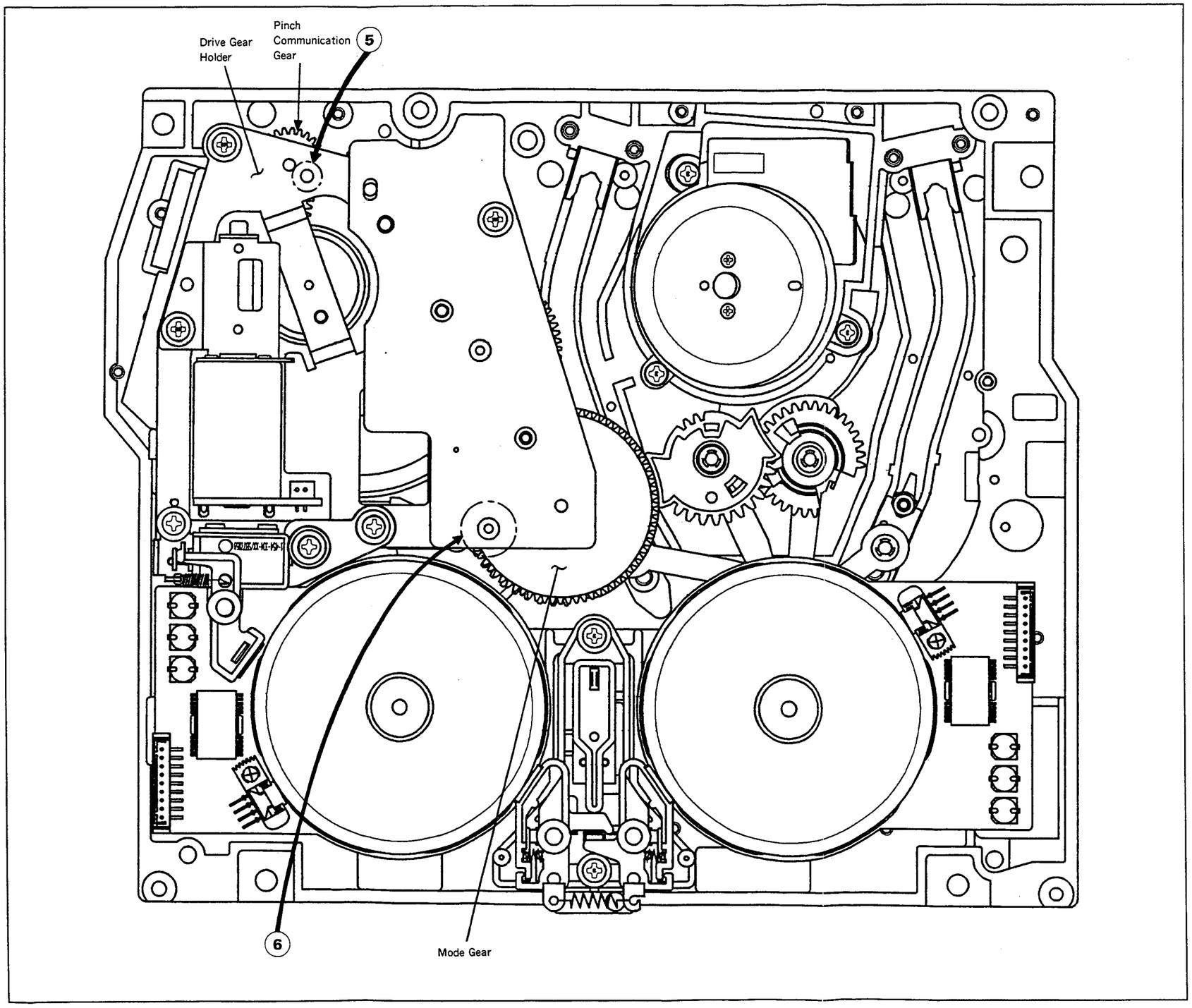


Fig. 1 Top View

4-3

Figure of mechanism : STOP mode



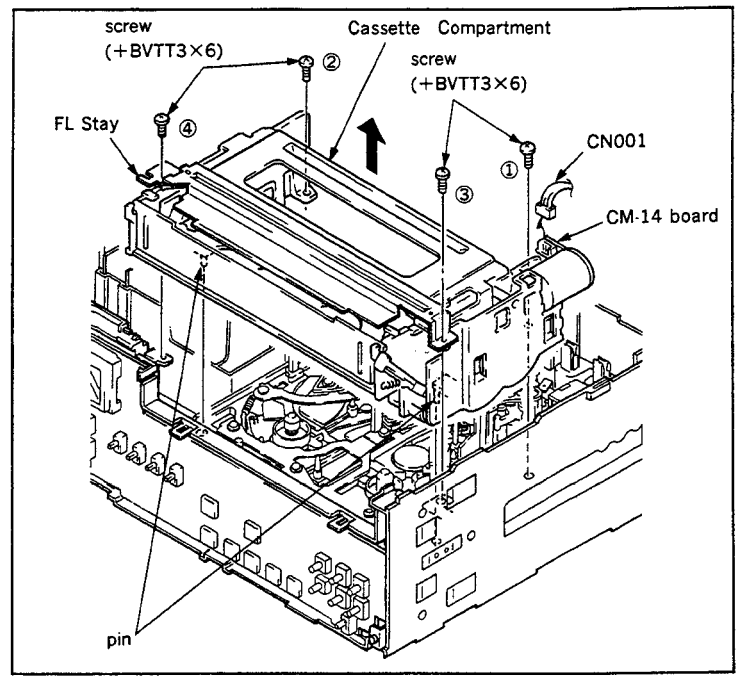
⑤	Match the holes of the pinch communication gear and the drive gear holder. (Ref. 4-20)
⑥	Match the holes of the mode gear and the drive gear holder. (Ref. 4-20)

Fig. 2 Bottom View

4-4

4-2. CASSETTE COMPARTMENT (FL ASS'Y) REPLACEMENT

(1) Disconnect connector CN001 from the CM-14 board.
(2) Remove the four screws, and remove the FL stay and the cassette compartment (FL ass'y) in the direction of the arrow.



Note on installation

①Align the two pins of the cassette compartment with the holes in the base plate.
②Install the FL stay on the cassette compartment.
③Tighten the screws in the sequence ① to ④.

4-2-1. Prevention lever replacement

(1) Remove the spring.
(2) Remove the claw, and move the prevention lever in the direction of arrow A.
(3) Remove the prevention lever in the direction of arrow B.

Note on installation

①The shaft of the prevention lever must enter the groove in the drive arm (left). (Fig. 2)

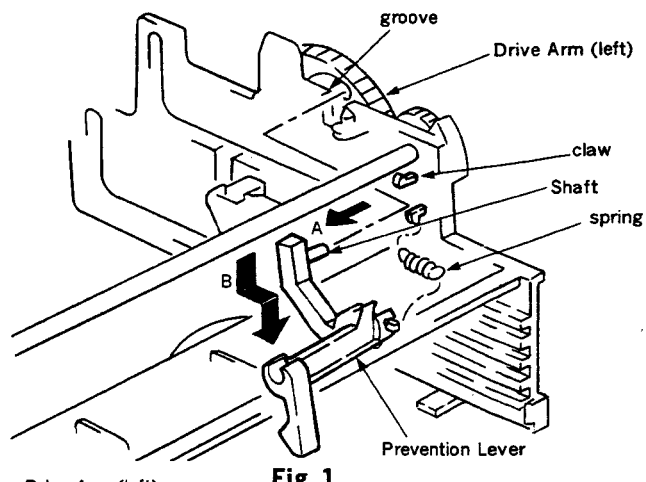


Fig. 1

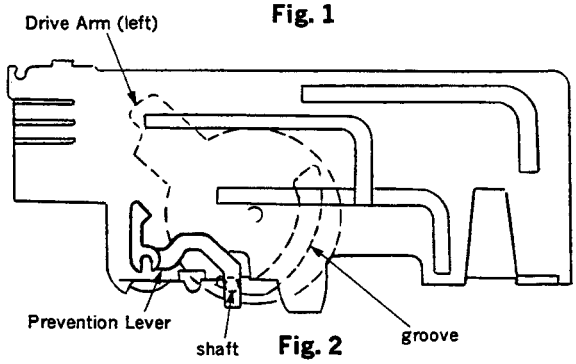


Fig. 2

4-2-2. Loading motor, worm gear (FL), worm wheel (FL) and worm retainer replacement

(1) Remove the four claws, then remove the gear cover ass'y. (Fig. 1)
(2) Remove the stopper washer 3, then pull out the worm wheel (FL). (Fig. 2)
(3) Remove the two screws, then remove the loading motor. (Fig. 2)
(4) Remove the worm gear (FL) and the worm retainer. (Fig. 2)

Note on installation

①To install the gear cover ass'y, obtain a shaft of 2 mm diameter and length of at least 30 mm. Pass the shaft through the holes in the gear cover ass'y, worm wheel (FL), drive arm (right) ass'y and right side plate, and engage the gear cover ass'y with the claw.

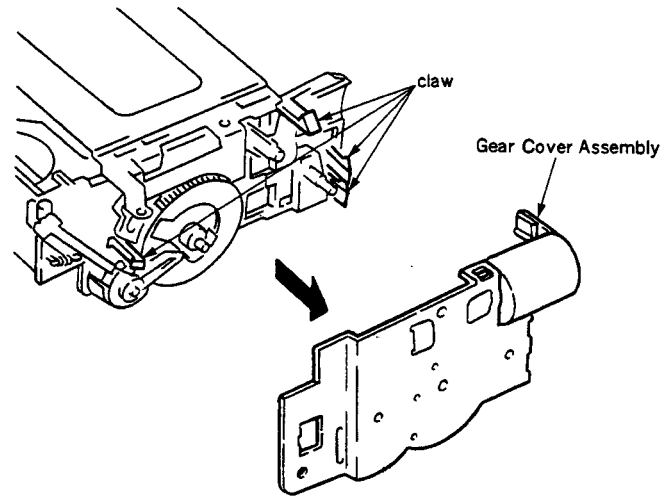


Fig. 1

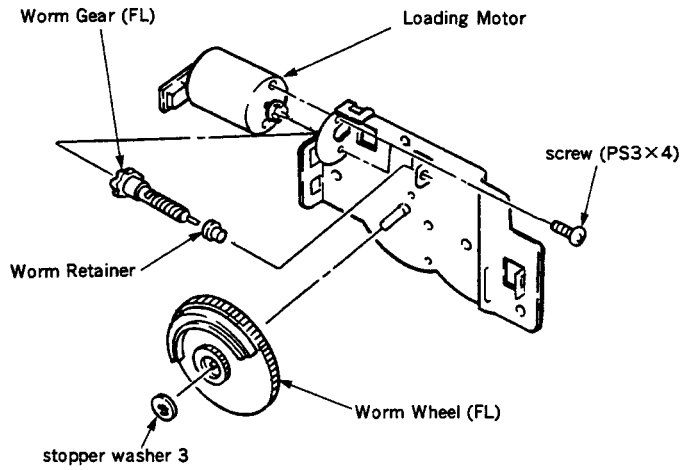


Fig. 2

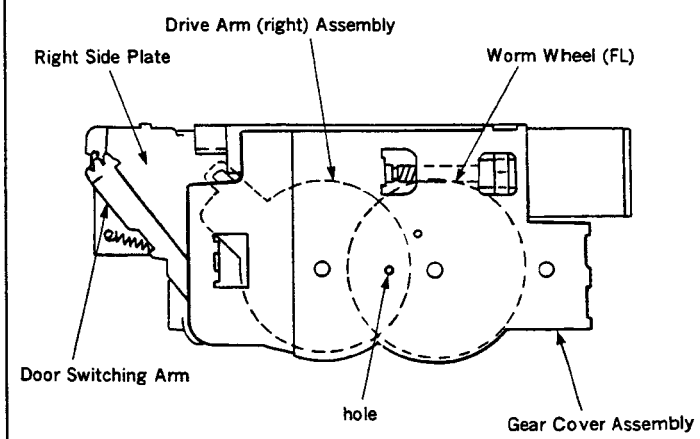
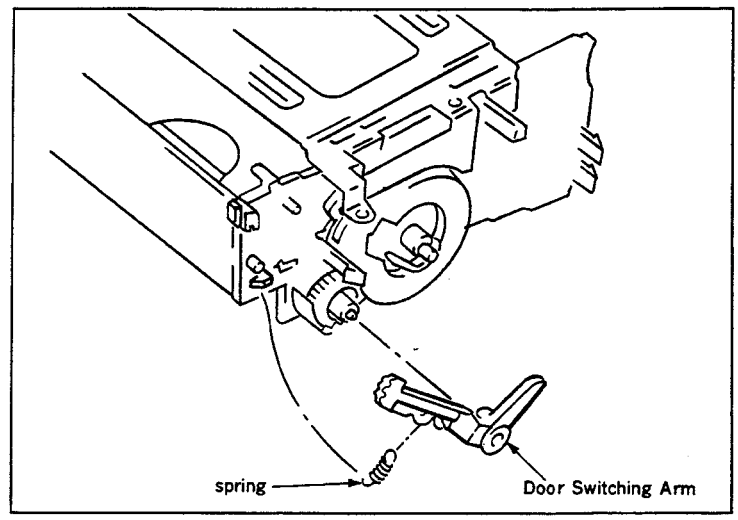


Fig. 3

4-2-3. Door switching arm replacement

(1) Remove the spring.
(2) Pull out the door switching arm.



4-3. C ROLLER ASS'Y REPLACEMENT

(1) Remove the spring from the notch in the ACE head base.
(2) Remove the stopper washer (4 mm dia.), then remove the C roller ass'y. (Fig. 1)

Note on installation

①Ensure that the opening of the hook is uppermost. (Fig. 2)
②Take care not to scratch the drum.
③Install the C roller ass'y in such a way that the extremity enters the part of the shuttle holder indicated by the arrow in Fig. 2.

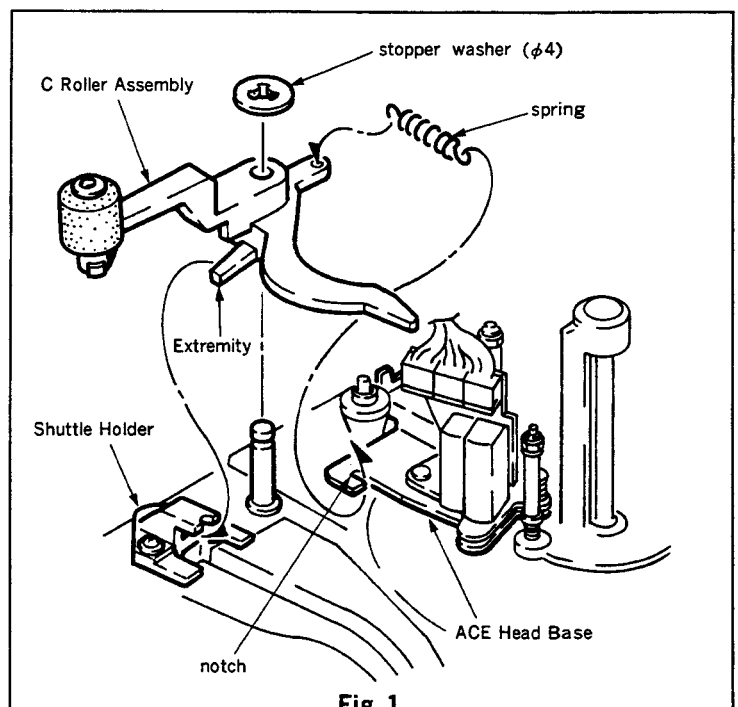


Fig. 1

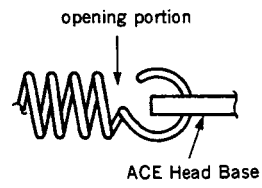


Fig. 2

4-4. UPPER DRUM ASS'Y REPLACEMENT

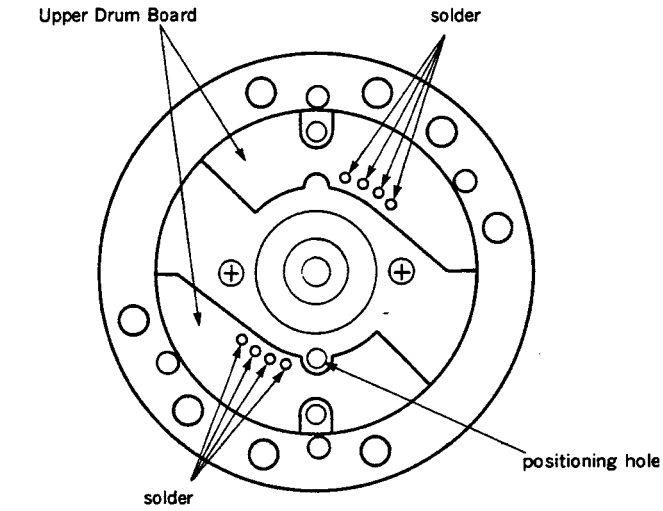
Tools:
Alignment tape (KRV-5821NSA and KRV-23NS)
X value adjustment tool (J-6380-710-A)
Box screwdriver (width 5.5 mm)
Guide adjustment screwdriver (J-6082-044-A or J-6080-811-A)
Oscilloscope
Connecting cable
VHS cassette tape (T-160 and T-120)

(1) Remove the screw, then remove the shaft ground ass'y.
(2) Unsolder the eight points on the upper drum board shown in Fig. 1.
(3) Remove the two screws, then remove the upper drum ass'y.

Note on installation

①Do not touch the head tip and the contact of the shaft ground ass'y with the fingers or a tool.
②Clean the surface of the drum shaft that touches the contact of the shaft ground ass'y, using cleaning fluid.
Note: Do not smear cleaning fluid too much to drum block.
(Cleaning fluid soaks into inside of drum block and rotary trans may be damaged.)
③Install the contact of the shaft ground ass'y at roughly the center of the drum shaft.
④Align the positioning hole of the upper drum ass'y with this of the lower drum ass'y, then install the upper drum ass'y.
⑤The tightening torque for installing the upper drum ass'y must be 590×10^{-3} N·m (6 kg·cm).

[Adjustment after replacing the upper drum ass'y]
• See next page.



Upper Drum Assembly (Top View)

Fig. 1

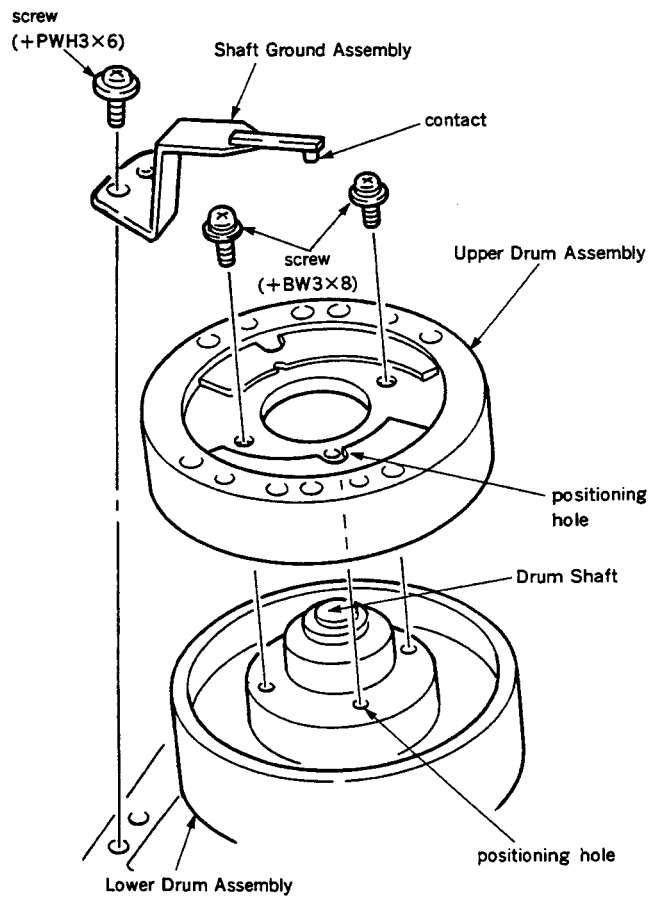
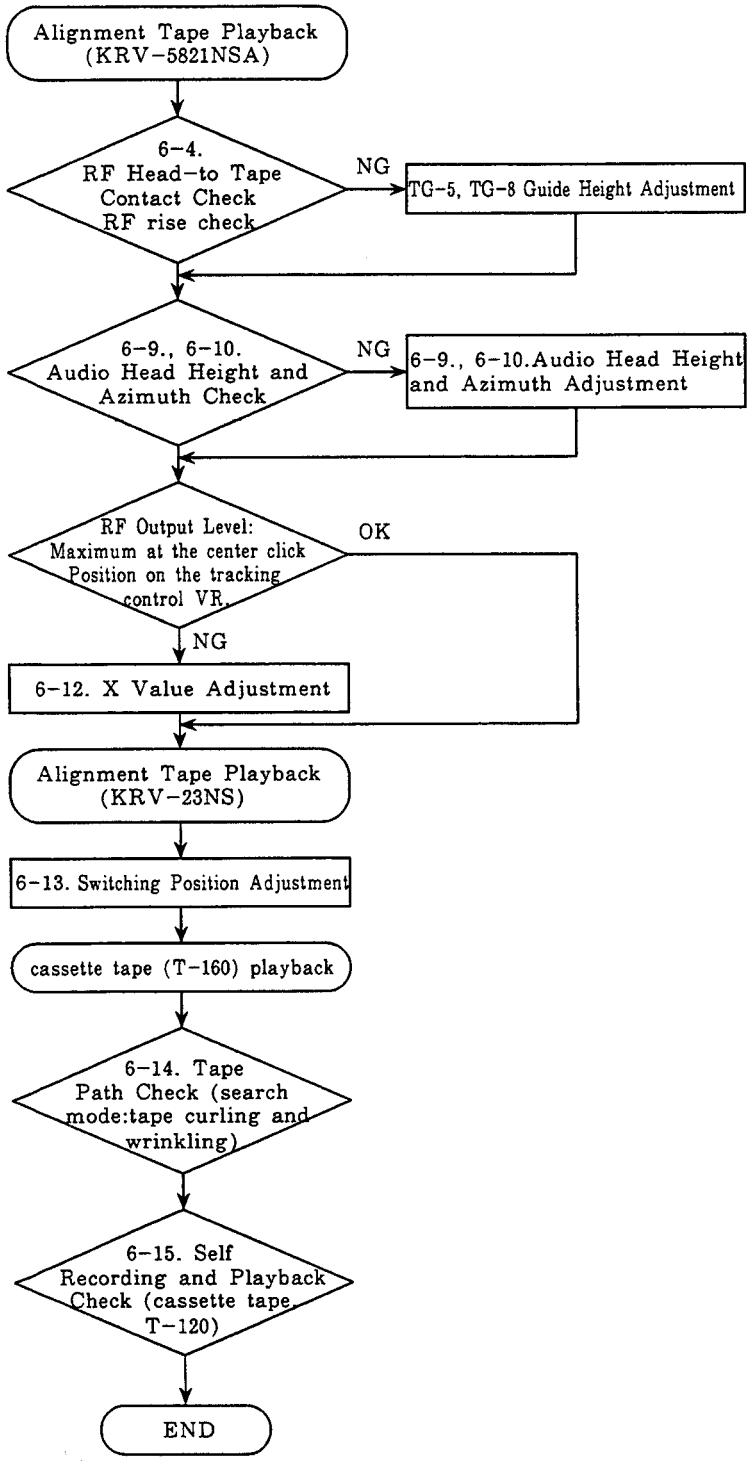


Fig. 2

[**Adjustment after replacing the upper drum ass'y**]

- Refer to Section 6, perform the Tape Path Alignment.


Alignment Tape Playback (KRV-5821NSA)
6-4. RF Head-to Tape Contact Check RF rise check
NG
TG-5, TG-8 Guide Height Adjustment
6-9., 6-10. Audio Head Height and Azimuth Check
NG
6-9., 6-10.Audio Head Height and Azimuth Adjustment
RF Output Level: Maximum at the center click Position on the tracking control VR.
OK
NG
6-12. X Value Adjustment
Alignment Tape Playback (KRV-23NS)
6-13. Switching Position Adjustment
cassette tape (T-160) playback
6-14. Tape Path Check (search mode:tape curling and wrinkling)
6-15. Self Recording and Playback Check (cassette tape, T-120)
END

4-5. DRUM ASS'Y REPLACEMENT

Tools :
Alignment tape (KRV-5821NSA and KRV-23NS)
X value adjustment tool (J-6380-710-A)
Box screwdriver (width 5.5 mm)
Guide adjustment screwdriver (J-6082-044-A or J-6080-811-A)
Oscilloscope
Connecting cable
VHS cassette tape (T-160 and T-120)

(1) Remove the drum harness from the RP board. (Fig. 1)
(2) Remove the screw, then remove the shaft ground ass'y. (Fig. 2)
(3) Disconnect connector CN604 (Fig. 2) from the drum ass'y.
(4) Remove the three screws, then remove the drum ass'y. (Fig. 2)

Note on installation

①Do not touch the head tip and the contact of the shaft ground ass'y with the fingers or a tool.
②Clean the following parts with cleaning fluid.
- The surface of the drum shaft that touches the ground contact
- The mounting faces of the drum ass'y and the chassis.
- The surface of the drum ass'y over which the tape travels

Note : Do not smear cleaning fluid too much to drum block.
(Cleaning fluid soaks into inside of drum block and rotary trans may be damaged.)

③Align the holes (two) in the drum ass'y with the pins (two) on the chassis, then install the drum ass'y.
④The tightening torque of the mounting screws of the drum ass'y must be 392×10^{-3}~490×10^{-3} N•m (4~5 kg•cm).
⑤Connect the drum harness to the RP board while being careful of the direction of the terminals.

[Adjustment after Replacing the Drum Ass'y]
See sub-section 4-4. [Same as the method of performing adjustment after replacing the upper drum ass'y]

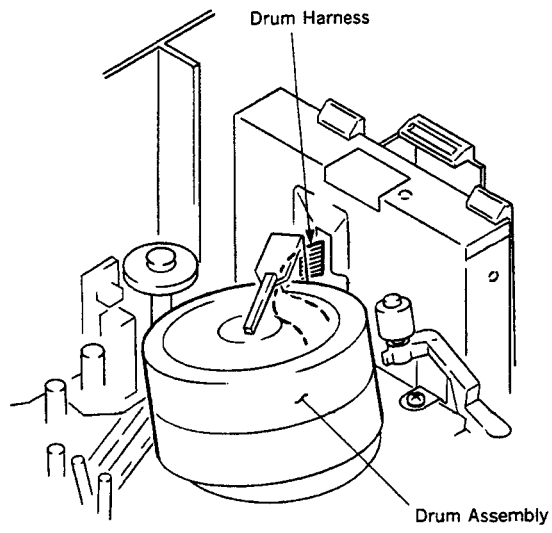


Fig. 1

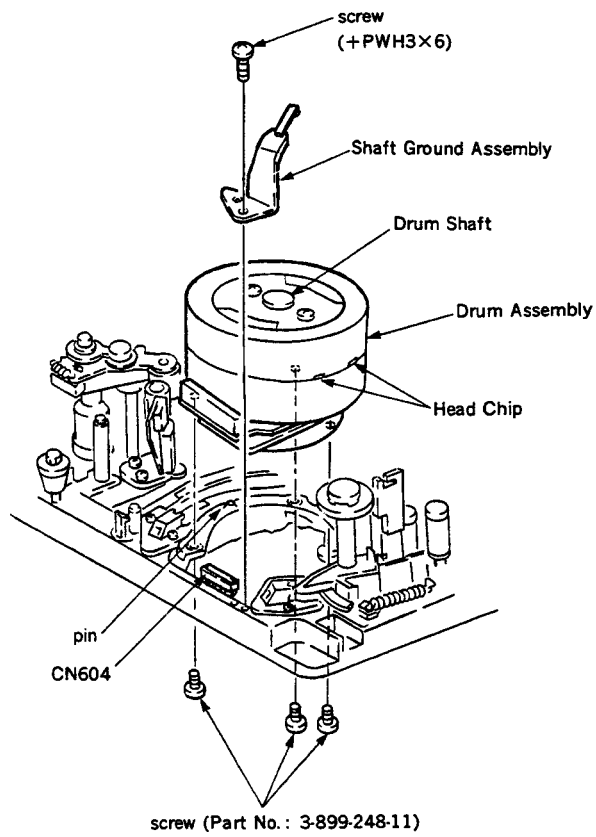


Fig. 2

4-6. TG-1 GUIDE REPLACEMENT

Tools:
Reference plate (J-6380-080-A)
Master block (J-6380-700-A)
Box screwdriver (5.5 mm)
Remote controller (RM-V100 or RM-V200 or SVRM-100)

(1) Remove the cassette compartment according to sub-section 4-2.
(2) Turn the adjustment nut and remove it. (Fig. 1)
(3) Remove the upper flange and TG-1 guide from shaft. (Fig. 1)

[Installation and height adjustment]
(1) Press the PLAY button on the remote controller for the threading completion mode. (See sub-section 4-1-3.)
(2) Clean the mounting face of the reference plate and the four mounting points on the chassis with cleaning fluid.
(3) Install the reference plate on the chassis. (Fig. 2) (If the reference plate moves about when the top of the plate is touched gently with the fingers at a point near where it is installed on the chassis, turn the adjustment screw until the plate no longer moves about.)
(4) Clean the top of the reference plate and the adjustment face of the master block with cleaning fluid.
(5) Set the master block with the stamped L1 face upward, then place it against the TG-1 guide from the direction shown in the drawing.
Turn the adjustment nut to meet the specification.
(Fig. 2 and 3)
(6) Perform tape path alignment of section 6.

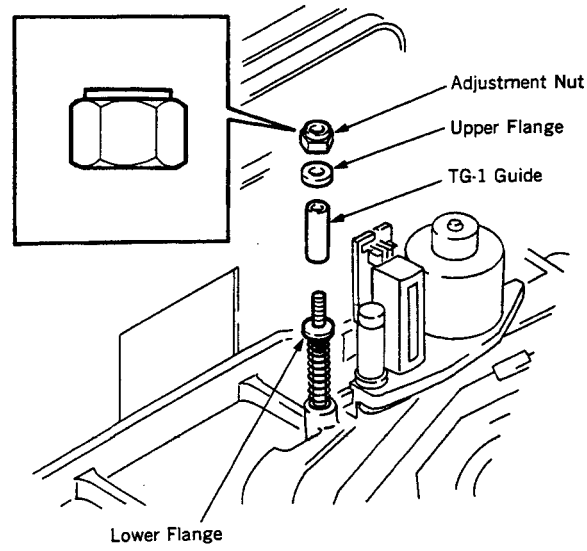


Fig. 1

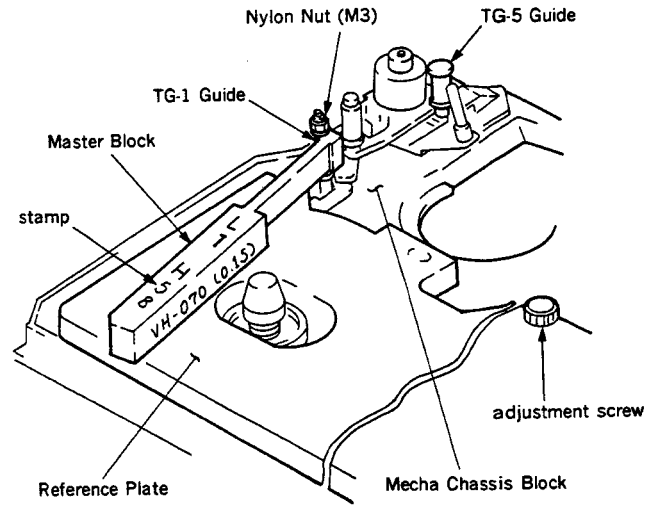
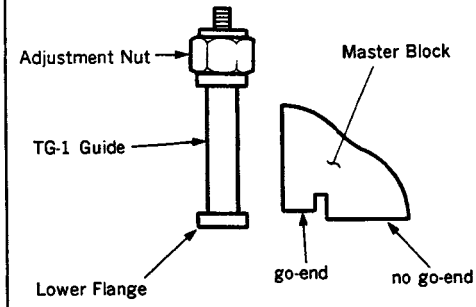


Fig. 2



Spec.:
The height of the lower flange must pass at the go-end of the master block and stop at the no go-end.

Fig. 3

4-7. TENSION REGULATOR ASS'Y (TG-2 GUIDE) AND STD ASS'Y REPLACEMENT

Tools :
Oscilloscope
Tentelometer (T2-H7-UMC)
Digital voltmeter
VHS cassette tape (T-120)
Sony oil (7-661-018-18)
Remote controller (RM-V100 or RM-V200 or SVRM-100)
Locking compound

(1) Remove the cassette compartment referring to sub-section 4-2.
(2) Disconnect connector CN657 from the HN board.
(3) Remove the spring from the STD ass'y.
(4) Remove stopper washer 2.3 and also the screw.
(5) Remove the tension regulator ass'y and STD ass'y together.
(Take care not to lose the poly-washer.)

Note on installation

①Clean the shaft with cleaning fluid, and apply 1/2 a drop of Sony oil. (Fig. 1)
②Insert the slit arm of the tension regulator ass'y into the slit in the STD ass'y, then install the resulting ass'y on the shaft. (Fig. 1)
③Align the U groove and longitudinal hole of the STD ass'y with bosses **a** on the chassis (Fig. 1), then install the STD ass'y in such a way that the adjustment groove comes to a point mid-way between bosses **b**. (Fig. 2)

[Adjustment after replacement]
Mechanical position adjustment of tension regulator ass'y

(1) Connect the oscilloscope as follows.
CH-1 (DC range) : TP407/DR-266 board (A-4)
(2) Turn ON No. 1 switch of DIP switch S101/SS board (C-1). (Fig. 3)
(3) Keep the cassette down switch pressed down with tape, etc. (Fig. 3)
(4) Turn ON the POWER switch.
(5) Press the PLAY button of the remote controller for the threading completion mode (rotate the drum).

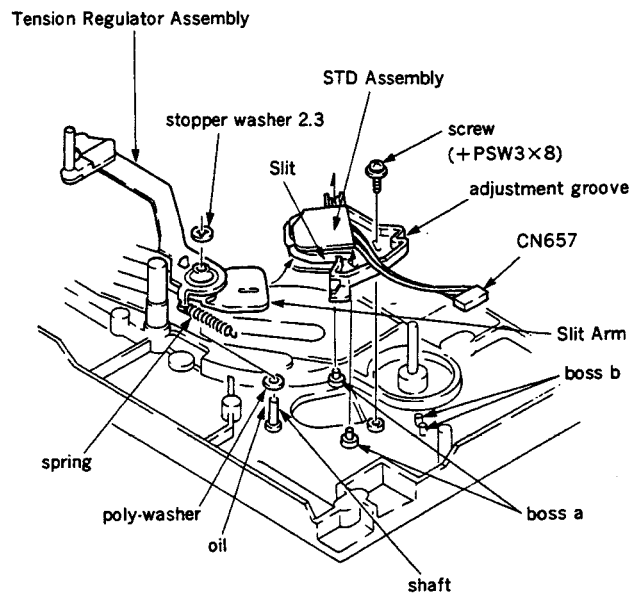


Fig. 1

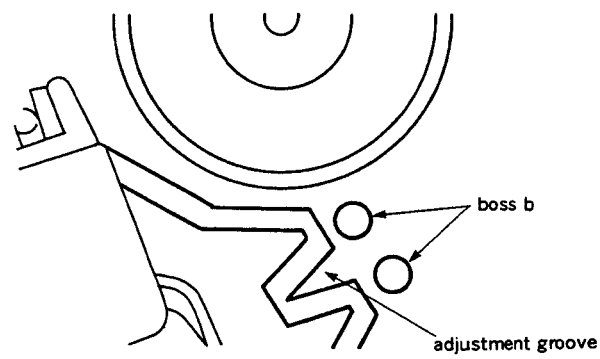


Fig. 2

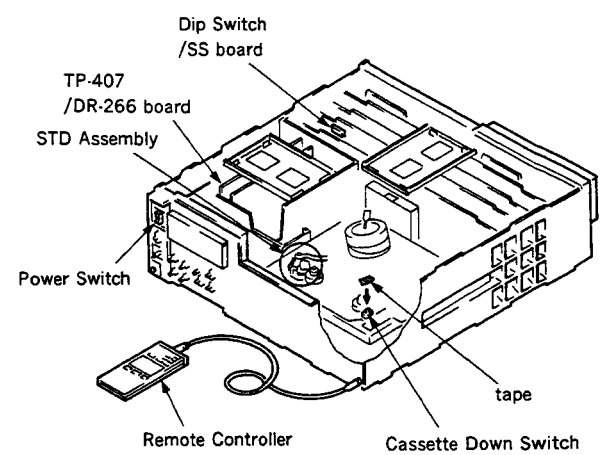


Fig. 3

(6) Loosen the screw of the STD ass'y by about 90°.
(7) Insert a screwdriver into the position shown in Fig. 4, then move the STD ass'y in the direction of arrows A and B, and set it to the position where the DC voltage of TP407 is minimum.
(8) Move the STD ass'y slightly in the direction of arrow C, and tighten the screw until the DC voltage of TP407 is within the specification range. (Fig. 4)
(9) Confirm that when the tension regulator ass'y is moved in the direction of the arrow D, the DC voltage of TP407 increases in direct proportion. (Fig. 5)
(10) Press the EJECT button of the remote controller for the un-threading completion mode.
(11) Turn OFF No. 1 switch of the DIP switch.
(12) Smear the screw of the STD ass'y with locking compound. (Fig. 4)

Tape tension adjustment

(13) Perform tape tension adjustment according to sub-section 6-2.

Tape run adjustment

(14) Perform tape path alignment of section 6.

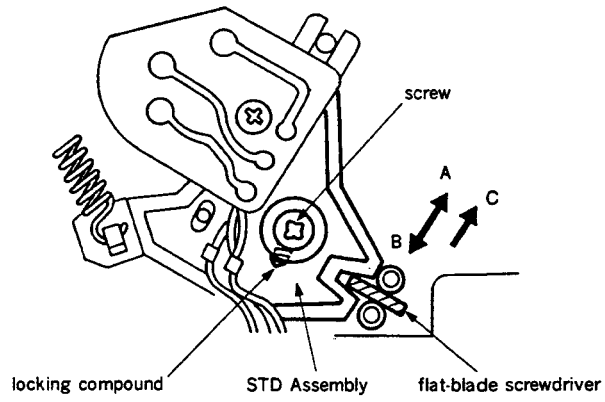
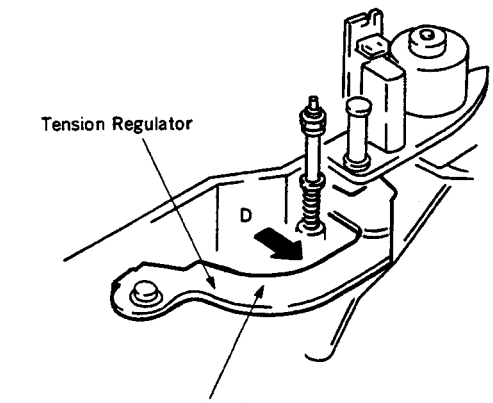


Fig. 4

Spec.:
DC voltage of TP407
min. to min.+0.2 V



Push arm horizontally 2 to 3 mm.
Note: Do not apply force in the vertical direction.

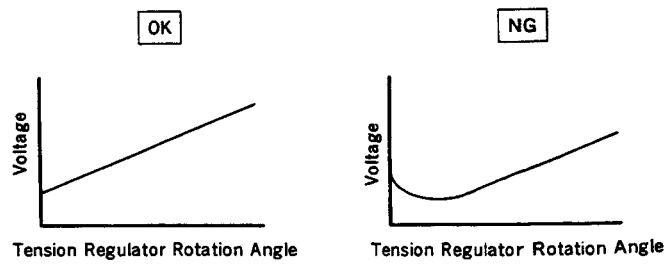


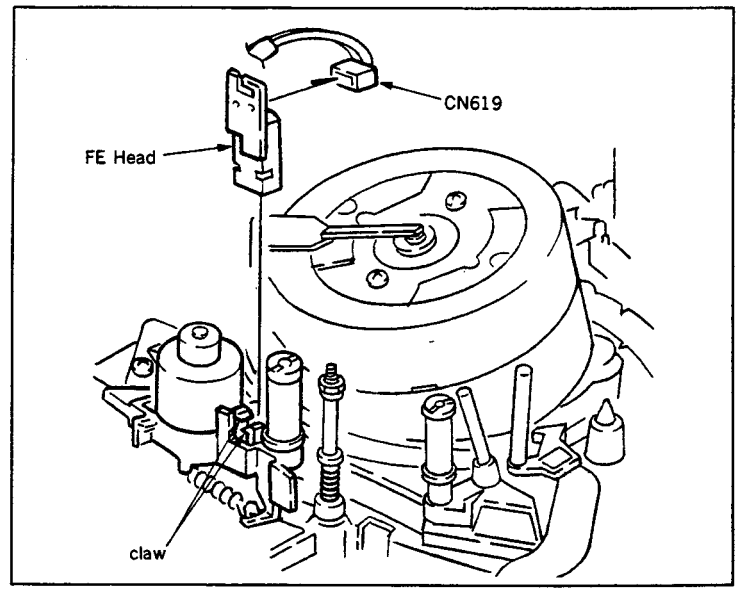
Fig. 5

4-8. FE HEAD REPLACEMENT (SVO-5800 only)

(1) Disconnect connector from the head.
(2) Remove the two claws, then remove the FE head.

Note on installation

①Push in the FE head until the two claws lock into place.



4-9. STABILIZER ASS'Y (TG-4 GUIDE) AND TG-3 GUIDE REPLACEMENT

Tools :
Reference plate (J-6380-080-A)
Master block (J-6380-700-A)
Guide adjustment screwdriver (J-6082-044-A or J-6080-811-A)
Remote controller (RM-V100 or RM-V200 or SVRM-100)
Sony oil (7-661-018-18)

(1) Remove the cassette compartment according to sub-section 4-2.
(2) Remove the FE head according to sub-section 4-8.
(3) Remove the tension coil spring.
(4) Remove stopper washer 1.5, then remove the compression coil spring.
(5) Remove the stabilizer ass'y from the chassis.

IP roller (TG-4 guide)

(6) Remove the retaining ring, then remove the IP roller.

TG-3 guide

(7) Turn the TG-3 guide counterclockwise with a guide adjustment screwdriver, and remove it.

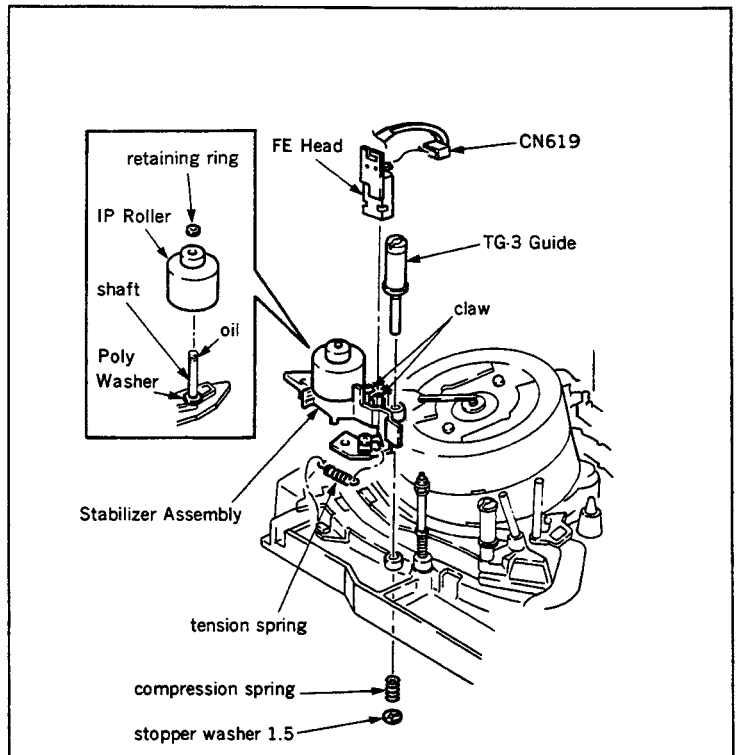


Fig. 1

Note on installation

①Clean the mounting shaft of the IP roller with cleaning fluid, then apply 1/3 of a drop of Sony oil.

②Install the TG-3 guide to the height shown in Fig. 2.

[Adjustment after replacement]

TG-3 guide height adjustment

(1) Press the PLAY button on the remote controller for the threading completion mode. (See sub-section 4-1-3.)

(2) Clean the mounting face of the reference plate and the four mounting points on the chassis with cleaning fluid.

(3) Install the reference plate on the chassis. (Fig. 3) (If the reference plate moves about when the top of the plate is touched gently with the fingers at a point near where it is installed on the chassis, turn the adjustment screw until the plate no longer moves about.)

(4) Clean the top of the reference plate and the adjustment face of the master block with cleaning fluid.

(5) Set the master block with the stamped L3 face upward, then place it against the TG-3 guide from the direction shown in the drawing, and confirm that the height of the lower flange satisfies the specification. (Figs. 3 and 4)

If the specification is not satisfied

(6) Turn the flange of the TG-3 guide with the guide adjustment screwdriver.

(7) Perform tape path alignment of section 6.

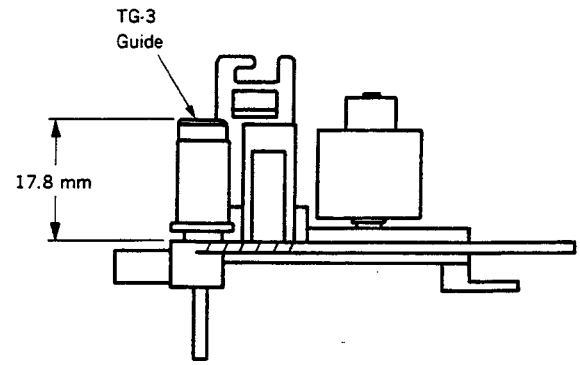


Fig. 2

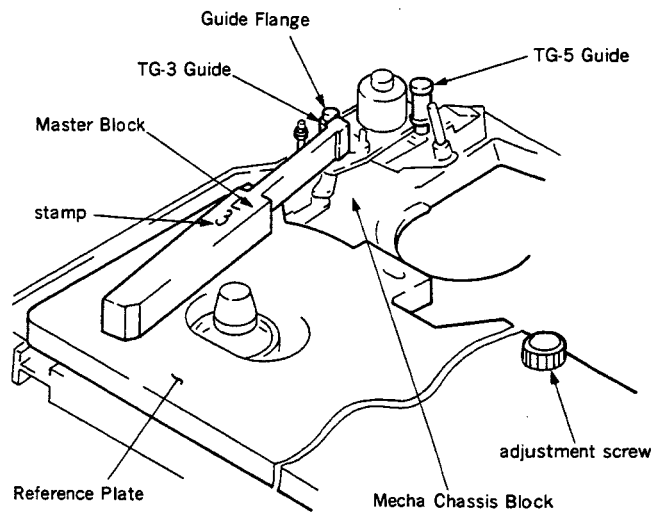


Fig. 3

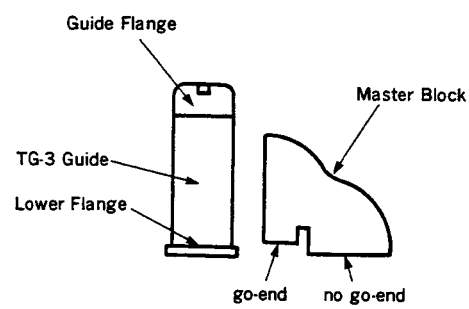


Fig. 4

Spec.:
The height of the lower flange must pass at the go-end of the master block and stop at the no go-end.

4-10. AUDIO HEAD ASS'Y REPLACEMENT

Tools :
Reference plate (J-6380-080-A)
Master block (J-6380-700-A)
Box screwdriver (width 5.5 mm)
Thickness gauge (9-911-053-00)
Remote controller (RM-V100 or RM-V200 or SVRM-100)
MOLYKOTE grease EM-30LG (J-6090-014-A)
or EM-30L (4-918-645-01) : DOW CORNING Corp.

(1) Remove the cassette compartment referring to sub-section 4-2.
(2) Disconnect connectors CN616, 617 and 618 from the AH board.
(3) Remove the tension coil spring.
(4) Remove the AC adjustment screw.
(5) Remove the adjustment nut, then pull out the audio head ass'y.

Note on installing the audio head

①Insert part **a** of the AH coil spring into the hole in the chassis, then insert part **b** into the bend in the ACE base ass'y. (Fig. 1)
②Smear grease onto the part **c** that the ACE base ass'y touch the AC adjustment screw. (Fig. 1)
③Install the audio head ass'y and the AC adjustment screw to the height shown in Fig. 3.

[Adjustment after replacement]
Audio head zenith adjustment

(1) Push the PLAY button of the remote controller for the threading completion mode. (Refer to sub-section 4-1-3.)
(2) Clean the mounting face of the reference plate and the four mounting points on the chassis with cleaning fluid.
(3) Install the reference plate on the chassis. (Fig. 2) (If the reference plate moves about when the top of the plate is touched gently with the fingers at a point near where it is installed on the chassis, turn the adjustment screw until the plate no longer moves about.)
(4) Clean the top of the reference plate and the adjustment face of the master block with cleaning fluid.
(5) Set the master block with the stamped L1 face upward, then place it gently against the audio head from the direction shown in the drawing (Fig. 2).

Caution : Take care not to damage the surface of the audio head.

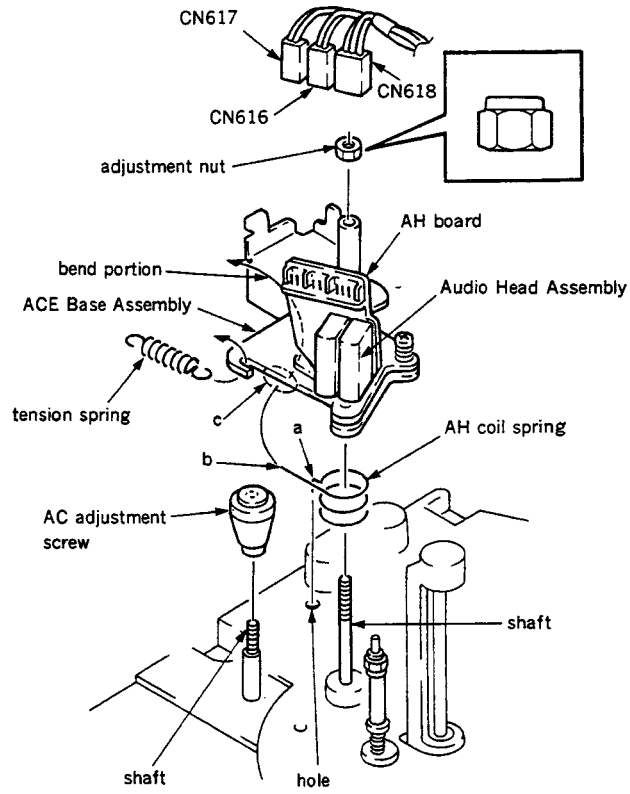


Fig. 1

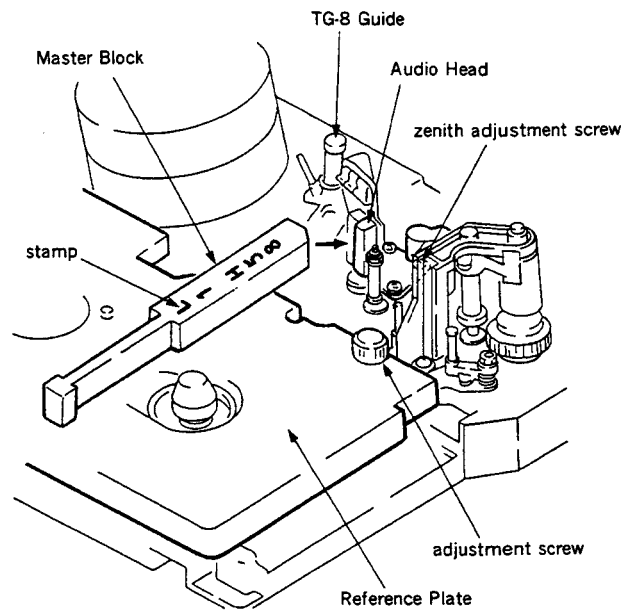


Fig. 2

(6) Tilt the head with the zenith adjustment screw until gap A satisfies the specification. (Fig. 4)

Audio head azimuth adjustment

(7) Change the orientation of the master block and place it against the side of the audio head from the direction shown in the drawing. (Fig. 5)

(8) Turn the azimuth adjustment screw so that gaps B and C satisfy the specification. (Fig. 6)

(9) Confirm that the zenith specification is satisfied.

If the specification is not satisfied

(10) Repeat the zenith and azimuth adjustments until the relevant specifications are satisfied.

Tape path alignment

(11) Perform tape path alignment of section 6.

- Upon completion of adjustment, smear locking compound onto the AC adjustment screw, zenith adjustment screw and the azimuth adjustment screw. (Fig. 7)

Electrical Alignment

(12) Section 10-2. NORMAL (LAU) REC Reference Level Setting (SVO-5800 only)

(13) Section 10-6. LAU PB Level Adjustment.

(14) Section 10-7. LAU PB Frequency Response Adjustment.

(15) Section 10-9 LAU VHS Bias Current Adjustment. (SVO-5800 only)

(16) Section 10-10 LAU S-VHS Bias Current Adjustment. (SVO-5800 only)

(17) Section 10-11. LAU REC Level Adjustment. (SVO-5800 only)

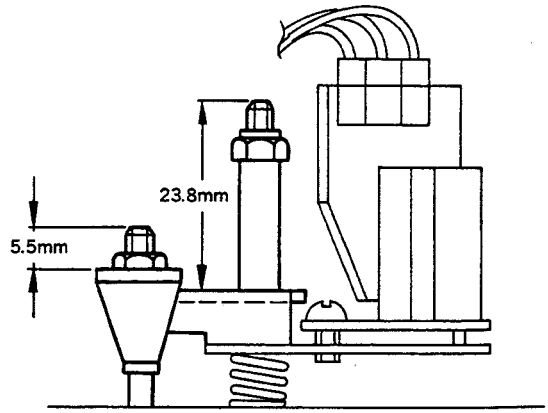


Fig. 3

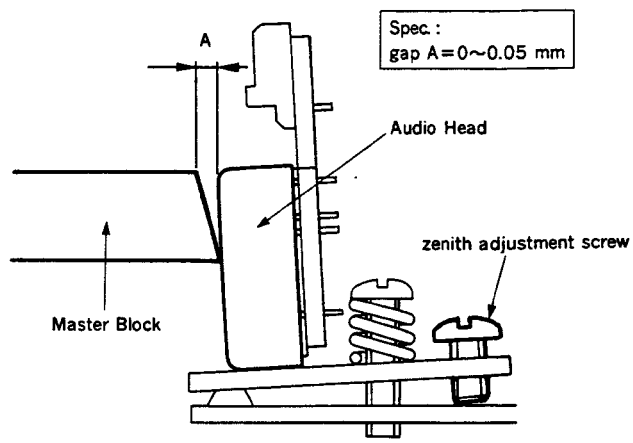


Fig. 4

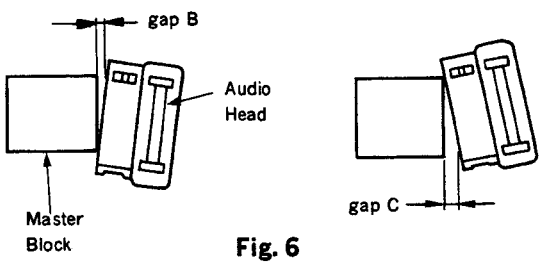


Fig. 6

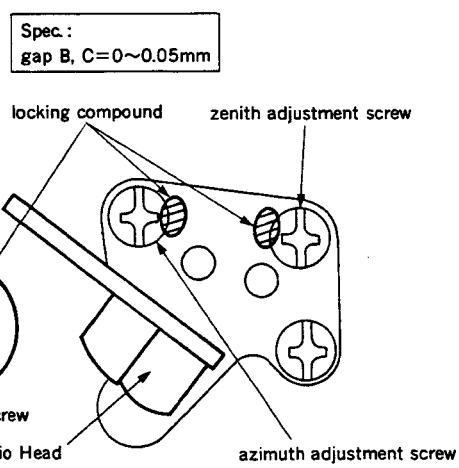


Fig. 7

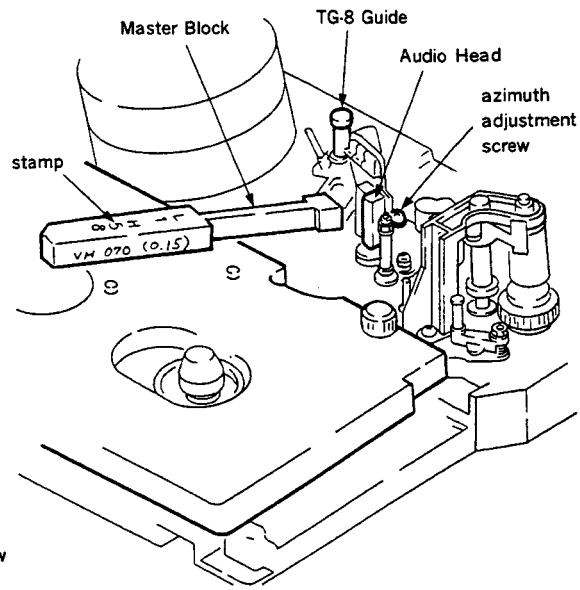


Fig. 5

4-11. TG-9 GUIDE REPLACEMENT

Tools :
Reference plate (J-6380-080-A)
Master block (J-6380-700-A)
Box screwdriver (5.5 mm)
Remote controller (RM-V100 or RM-V200 or SVRM-100)

(1) Remove the cassette compartment referring to sub-section 4-2.
(2) Turn the adjustment nut and remove it. (Fig. 1)
(3) Remove the upper flange and TG-9 guide from shaft. (Fig. 1)

[Installation and height adjustment]
(1) Press the PLAY button on the remote controller for the threading completion mode. (Refer to sub-section 4-1-3.)
(2) Clean the mounting face of the reference plate and the four mounting points on the chassis with cleaning fluid.
(3) Install the reference plate on the chassis. (Fig. 2) (If the reference plate moves about when the top of the plate is touched gently with the fingers at a point near where it is installed on the chassis, turn the adjustment screw until the plate no longer moves about.)
(4) Clean the top of the reference plate and the adjustment face of the master block with cleaning fluid.
(5) Set the master block with the stamped L1 face upward, then place it against the TG-9 guide from the direction shown in the drawing.
Turn the adjustment nut to meet the specification.
(6) Perform tape path alignment of section 6.

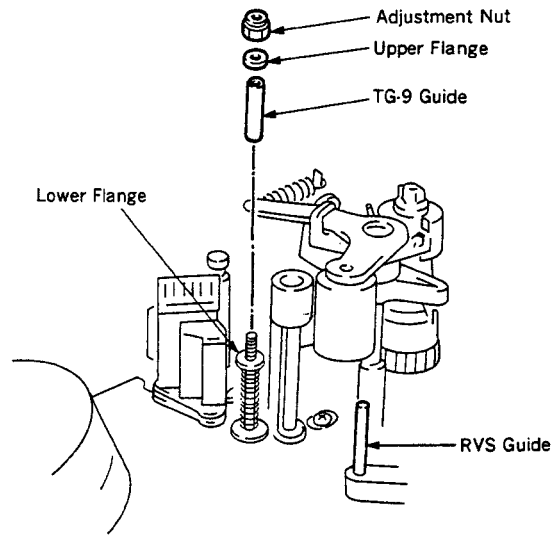


Fig. 1

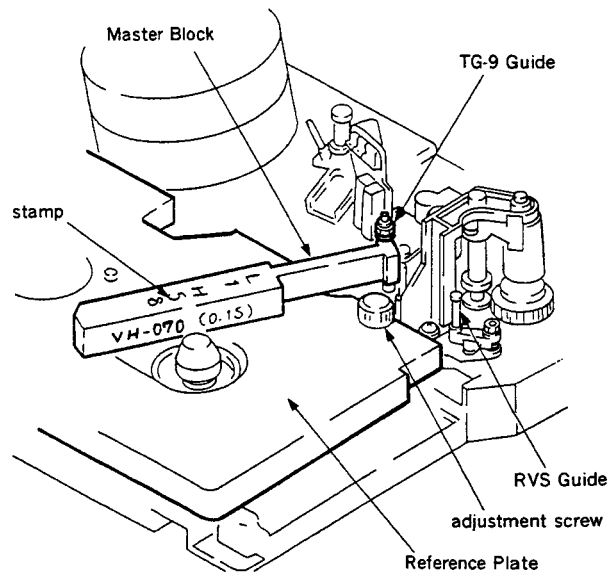
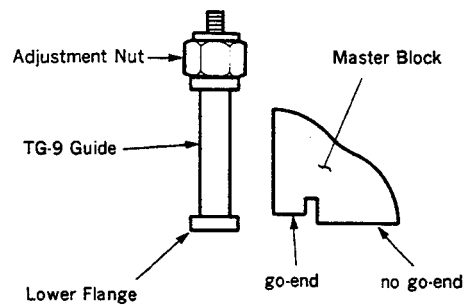


Fig. 2



Spec. :
The height of the lower flange must pass at the go-end of the master block and stop at the no go-end.

Fig. 3

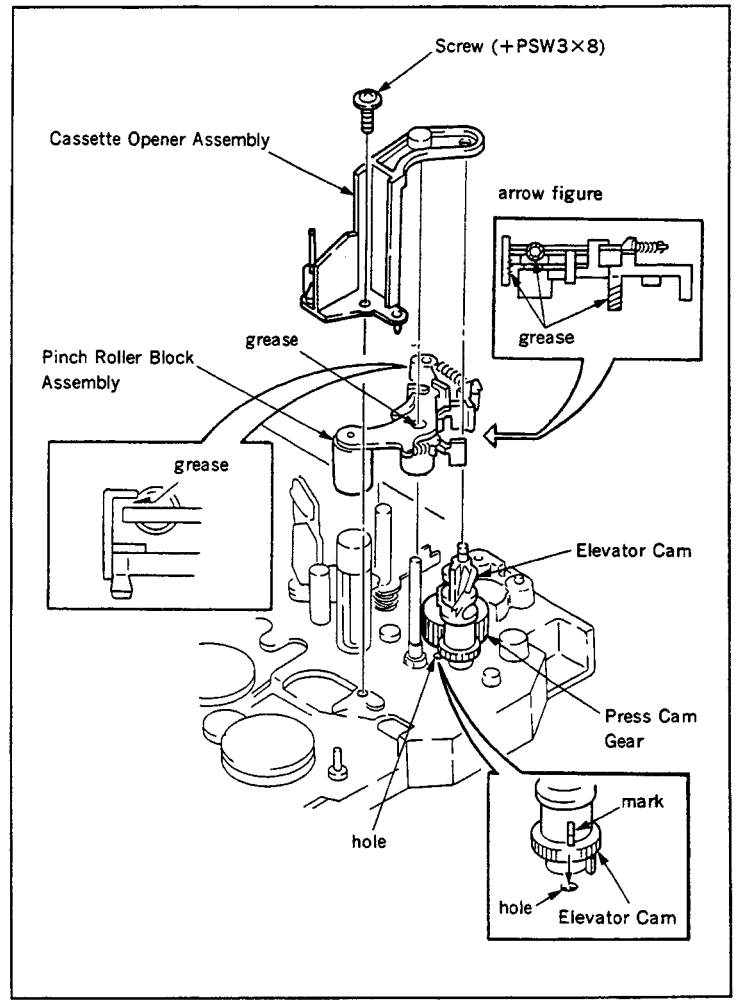
4-12. PINCH ROLLER BLOCK ASS'Y AND ELEVATOR CAM REPLACEMENT

Tool :
MOLYKOTE grease EM-30LG (J-6090-014-A)
or EM-30L (4-918-645-01) : DOW CORNING Corp.

(1) Remove the screw, then remove the cassette opener ass'y.
(2) Pull out the pinch roller block ass'y.
(3) Pull out the elevator cam.

Note on installation

①Align the mark on the elevator cam with the hole in the chassis, then engage the elevator cam with the press cam gear, and install it on the shaft. (As a result, the engagement phases of the elevator cam and press cam gear will coincide.)
②Smear the parts of the pinch roller block ass'y indicated by the arrows (five) with MOLYKOTE grease.



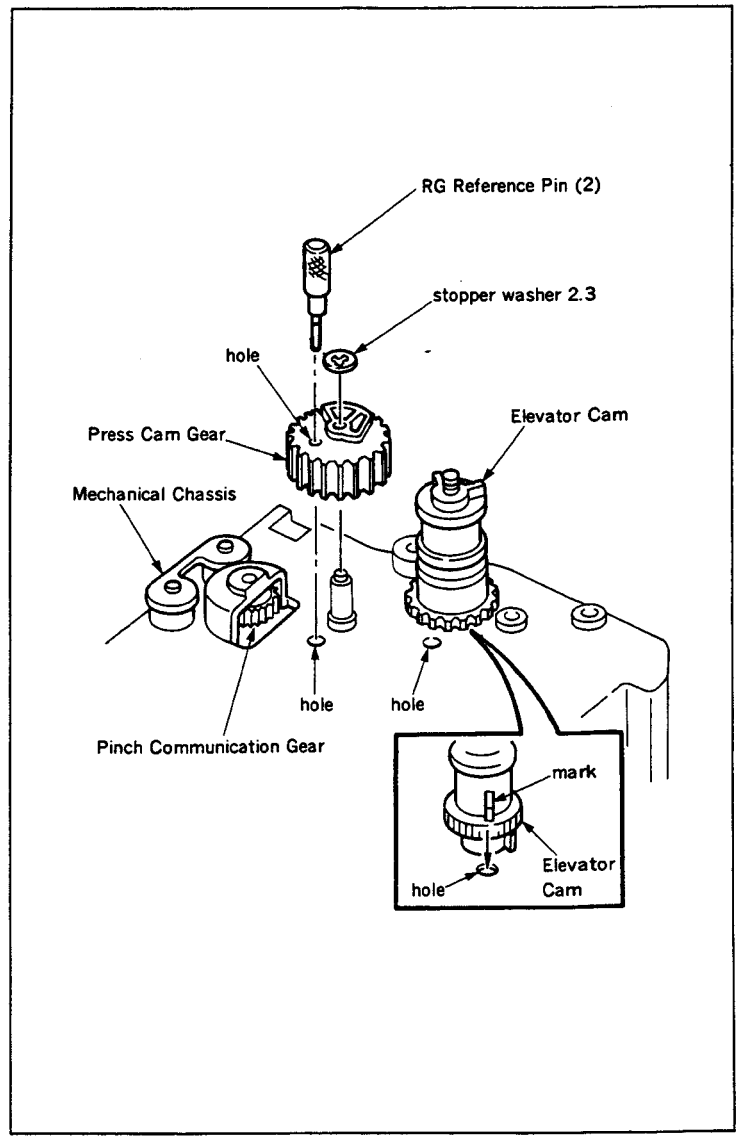
4-13. PRESS CAM GEAR REPLACEMENT

Tool :
RG reference pin (2) (J-6380-050-A)

(1) Remove the pinch roller block ass'y and Pinch solenoid ass'y according to Sec. 4-12 and 4-31.
(2) Remove stopper washer 2.3, then remove the press cam gear.

Note on installation

①Pass RG reference pin (2) through the hole in the press cam gear. Next, align it with the hole in the chassis, then engage the press cam gear with the elevator cam and the pinch communication gear, and install it on the shaft.
(By aligning the pin with the holes in the gear, the meshing phases of the press cam gear, elevator cam and pinch communication gear will coincide.)
②The mark on the elevator cam shown in the figure must coincide with the hole in the chassis.



4-14. RVS ARM ASS'Y (RVS GUIDE) AND RVS CAM GEAR REPLACEMENT

Tools :
RG reference pin (1) (J-6380-040-A)
Reference plate (J-6380-080-A)
Master block (J-6380-700-A)
Box screwdriver (width 5.5 mm)
Remote controller (RM-V100 or RM-V200 or SVRM-100)
Sony oil (7-661-018-18)

(1) Remove the cassette compartment according to sub-section 4-2.
(2) Remove the E ring, then pull out the RVS arm ass'y. (Fig. 2)
(3) Remove the adjustment nut, then remove the guide base ass'y and the compression coil spring. (Fig. 1)
(4) Remove stopper washer 2.3, then pull out the RVS cam gear. (Fig. 2)

Note on installation

①Insert the projection on the guide base ass'y into the hole in the RVS arm, then install the guide base ass'y. (Fig. 1)
②Pass RG reference pin (1) through the hole in the RVS cam gear, then align it with hole B in the chassis, engage the RVS cam gear with the RVS relay gear, then install the gears on the shafts. (Fig. 2). Also, confirm that the hole in the press cam gear coincides with the hole in the chassis. (Refer to sub-section 4-13.)
(By aligning the hole in the gear, the engagement phases of the drive gears will coincide.)
③Clean the mounting shaft of the RVS arm ass'y with cleaning fluid, then apply 1/2 a drop of Sony oil. (Fig. 2)
④Insert part **a** of the RVS coil spring into hole A in the chassis, then insert part **b** into the bend in the RVS arm ass'y. (Fig. 2)

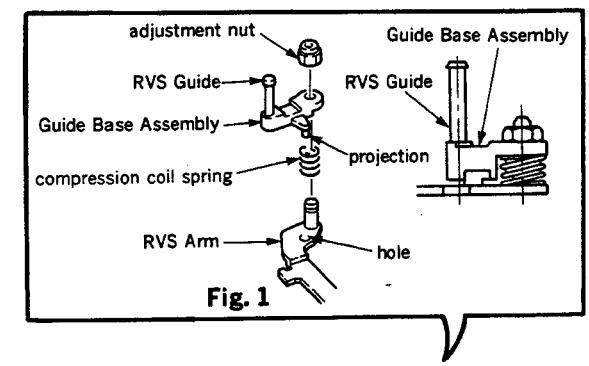


Fig. 1

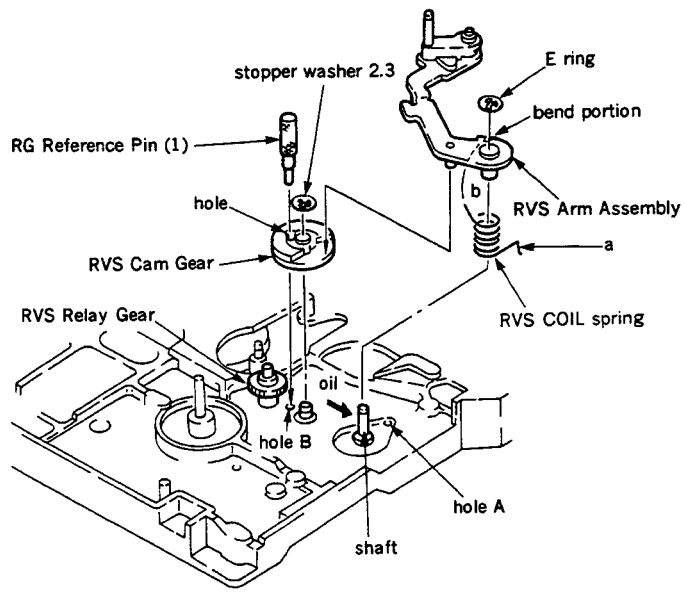


Fig. 2

[**Adjustment after replacement**]

RVS guide height adjustment

(1) Press the PLAY button on the remote controller for the threading completion mode. (Refer to Sec. 4-1-3.)

(2) Clean the mounting face of the reference plate and the four mounting faces on the chassis with cleaning fluid.

(3) Install the reference plate on the chassis. (Fig. 3) (If the reference plate moves about when the top of the plate is touched gently manually at a point near where it is installed on the chassis, turn the adjustment screw until the plate no longer moves about.)

(4) Clean the top of the reference plate and the adjustment face of the master block with cleaning fluid.

(5) Set the master block with the stamped L1 face upward, then place it against the RVS guide from the direction shown in the figure. (Fig. 3)

(6) Using a box screwdriver, turn the adjustment nut until the specification is satisfied. (Fig. 4)

(7) Perform tape path alignment of Sec. 6.

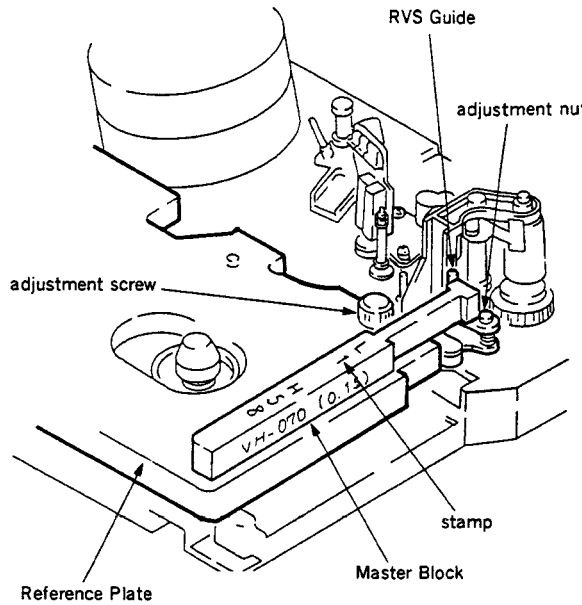


Fig. 3

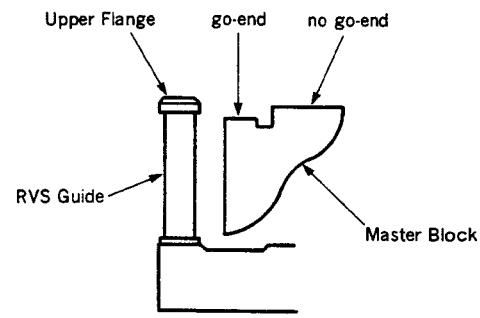


Fig. 4

Spec.:
The height of the upper flange must pass at the go-end of the master block and stop at the no go-end.

4-15. FR DRIVE GEAR AND RVS RELAY GEAR REPLACEMENT

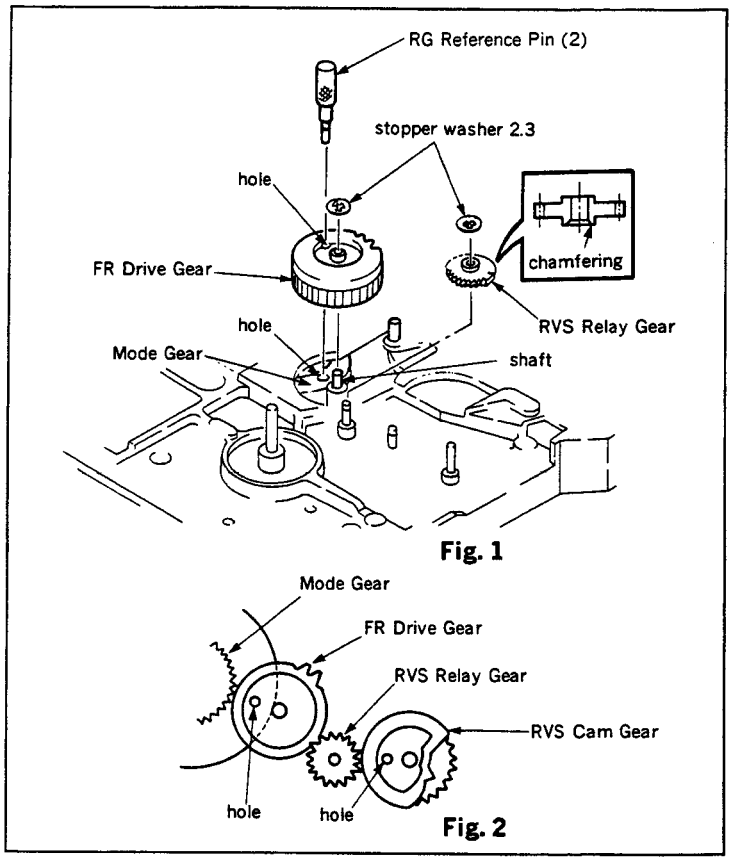
Tools :
RG reference pin (1) (J-6380-040-A)
RG reference pin (2) (J-6380-050-A)

(1) Remove the cassette compartment according to sub-section 4-2.
(2) Remove the RVS arm ass'y and the RVS cam gear according to sub-section 4-14.
(3) Remove each of stopper washer 2.3, then remove the FR drive gear and the RVS relay gear.
(Fig. 1)

Note on installation

Gear installation sequence

①Install the RVS relay gear on the shaft, taking care that it is facing the right direction. (Fig. 1)
②Pass RG reference pin (2) through the hole in the FR drive gear, then align it with the hole in the mode gear, engage the FR drive gear with the RVS relay gear, and install it on the shaft. (Fig. 1)
③Using RG reference pin (1), engage the RVS cam gear with the RVS relay gear, then install it on the shaft according to subsection 4-14. (Fig. 2)
(By aligning the holes, the engagement phases of the drive gears will coincide.)

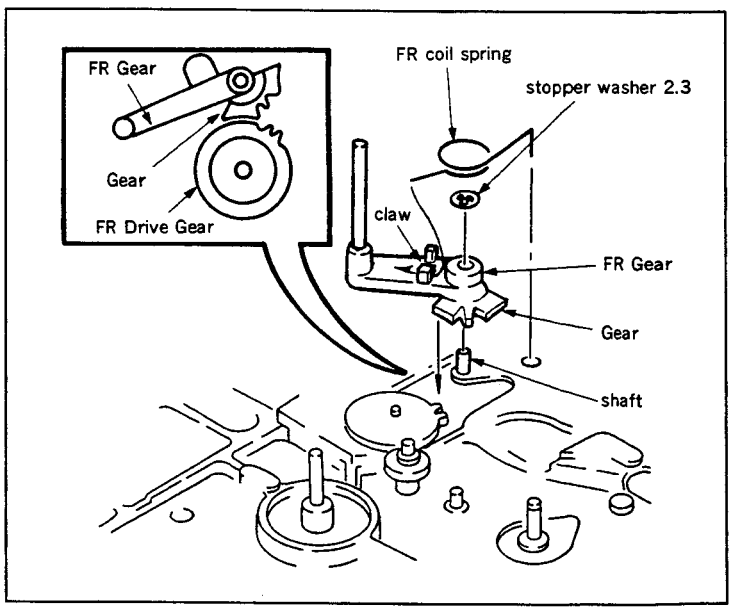


4-16. FR GEAR REPLACEMENT

(1) Remove the FR coil spring.
(2) Remove stopper washer 2.3, then pull out the FR gear.

Note on installation

①Align the gear part of the FR gear with the position shown in the figure.



4-17. REEL TABLE ASS'Y REPLACEMENT

Tools :
Reference plate (J-6380-080-A)
Reel table height adjustment tool (J-6380-090-A)
Hex wrench screwdriver (width 1.5 mm)

(1) Remove the cassette compartment referring to sub-section 4-2.
(2) Remove the set screw with the hex wrench.
(3) Pull out the reel table ass'y from the reel shaft.

[Reel table height adjustment]
(1) Clean the mounting face of the reference plate and the four mounting faces on the chassis with cleaning fluid.
(2) Install the reference plate on the chassis. (Fig. 2) (If the reference plate moves about when the top of the plate is touched gently with the fingers at a point near where it is installed on the chassis, turn the adjustment screw until the plate no longer moves about.)
(3) Clean the top of the reference plate and the adjustment face of the reel table height adjustment tool with cleaning fluid.
(4) Set the reel table height adjustment tool with the stamped side upward, then install it on the reference plate. (Fig. 2)
(5) Perform adjustment so that the height of the S side reel table (or T side reel table) satisfies the specification at position **a**, then rotate the table 90° in the direction of the arrow, and perform adjustment so that the height of the reel table satisfies the specification at position **b**. (Figs. 2 and 3)

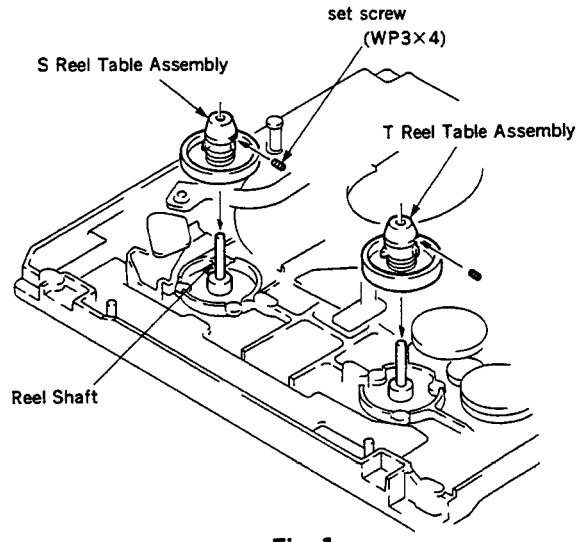


Fig. 1

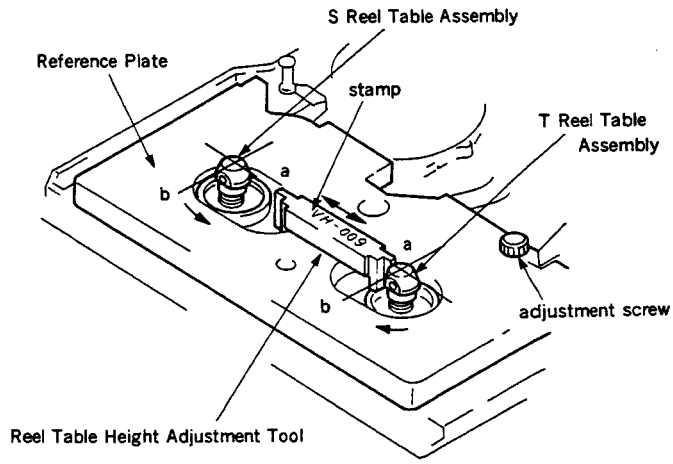


Fig. 2

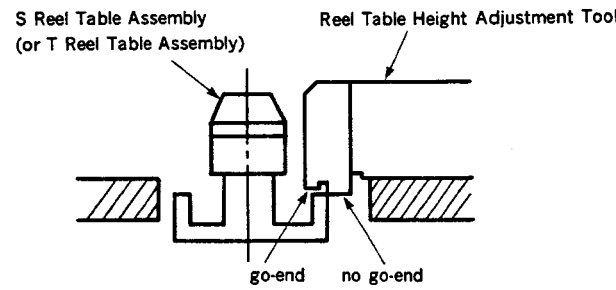


Fig. 3

Spec. :
The height of the S side (T side) reel table must pass at the go-end of the reel table height adjustment tool and stop at the no-go end.

4-18. REEL BRAKE ASS'Y REPLACEMENT

(1) Remove the cassette compartment referring to sub-section 4-2.
(2) Disconnect connector CN656 of the solenoid harness from the HN-198 board. (surface of chassis) (Fig. 1)
(3) Remove the two screws, then remove the reel brake ass'y. (back side of chassis) (Fig. 1)
(4) Remove the spring, then remove the claw of the M clamp, then remove the brake arm (S) ass'y and the brake arm (T) ass'y. (Fig. 2)
(5) Raise part A of the B slider in the direction of arrow B, then remove the claw from the iron core of the solenoid, and pull out the B slider in the direction of arrow C. (Fig. 2)
(6) Remove the two screws and two washers, then remove the solenoid. (Fig. 2)

Note on installation

①Smear locking compound onto the fixing screws of the reel brake ass'y.

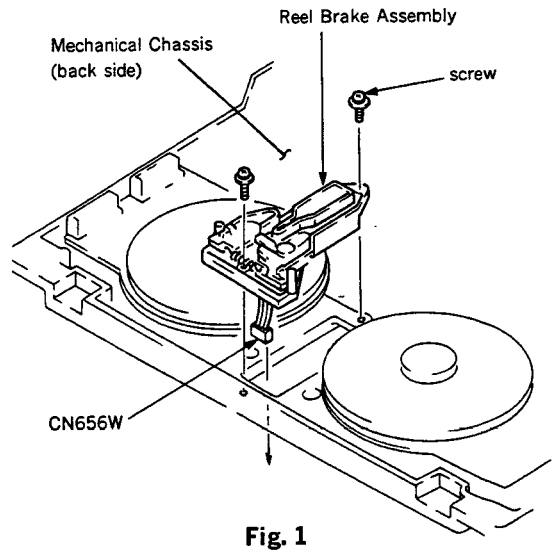


Fig. 1

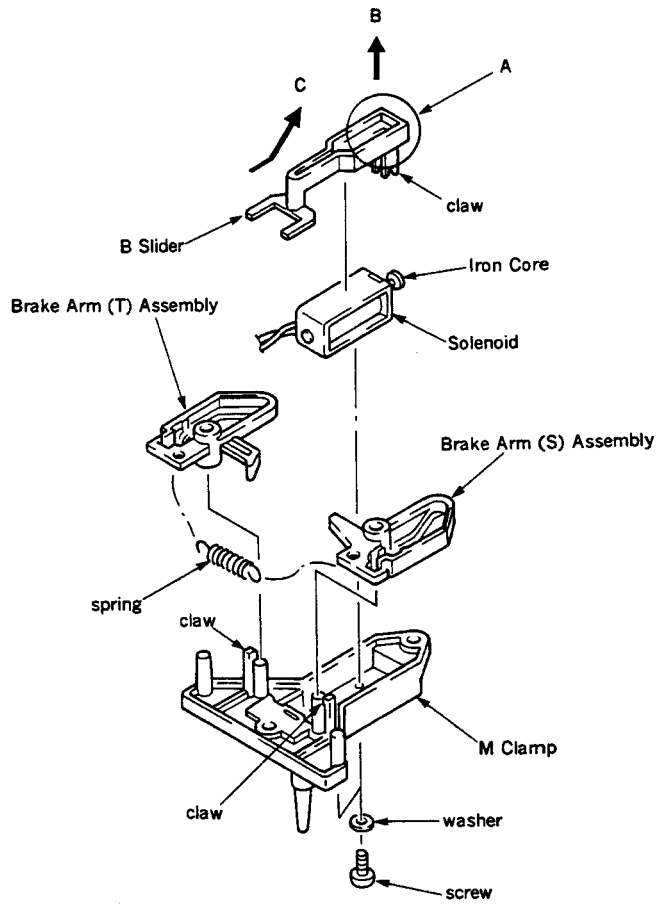


Fig. 2

4-19. REEL MOTOR REPLACEMENT

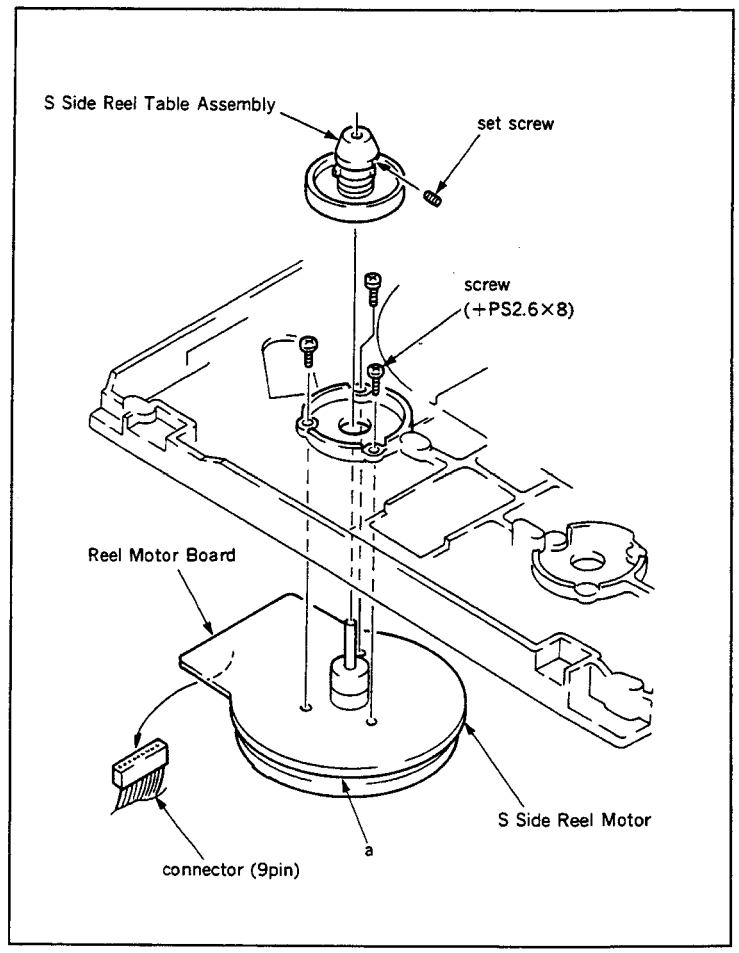
Tools :
Reference plate (J-6380-080-A)
Reel table height adjustment tool (J-6380-090-A)
Hex wrench screwdriver (width 1.5 mm)

- The procedure of replacing the reel motor is the same for both the S side and the T side. Here, the procedure of replacing the S side reel motor is described.

(1) Remove the cassette compartment referring to sub-section 4-2.
(2) Remove the S side reel table ass'y referring to sub-section 4-17.
(3) Disconnect the 9-pin connector from the reel motor board.
(4) Remove the three screws, then remove the S side reel motor.

Note : Do not touch the outer periphery (a part) of the reel motor with the fingers.

[Adjustment after installation]
(1) Adjust the height of the S side reel table ass'y referring to sub-section 4-17.



4-20. DRIVE GEAR ASS'Y REPLACEMENT

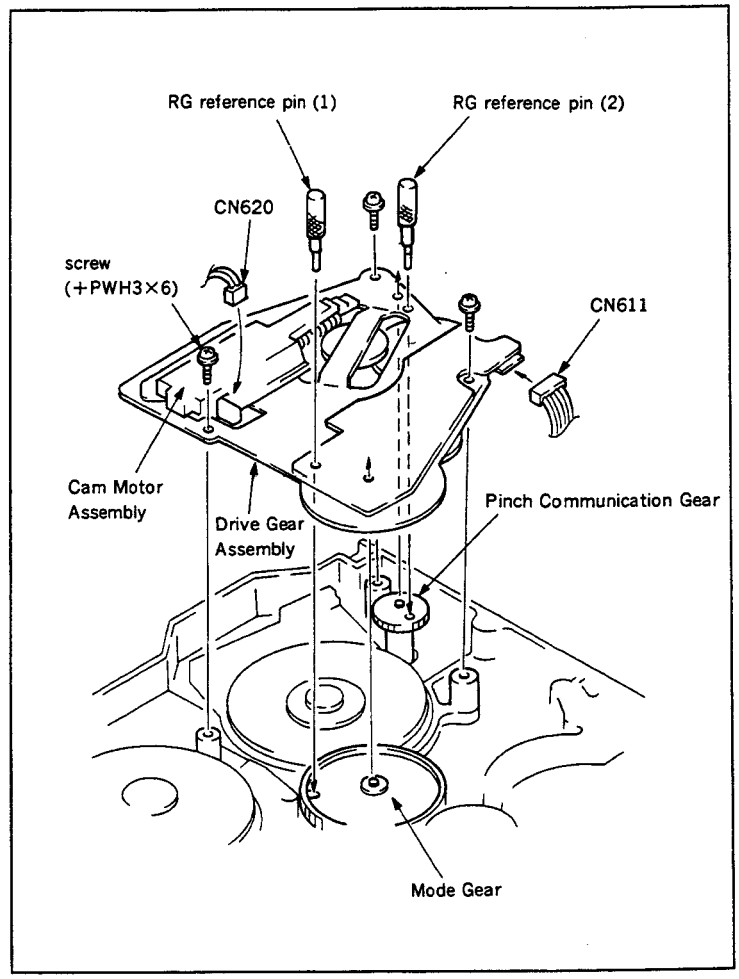
Tools :
RG reference pin (1) (J-6380-040-A)
RG reference pin (2) (J-6380-050-A)

(1) Disconnect connector CN611 from the PTC-73 board.
(2) Disconnect connector CN620 from the LD-35 board of the cam motor ass'y.
(3) Remove the three screws, then remove the drive gear ass'y.

Note : Take care not to rotate the mode gear and the pinch communication gear more than once, after removing the drive gear ass'y.

Note on installation

①Pass RG reference pin (1) and RG reference pin (2) through the holes in the drive gear ass'y shown in the figure, then align each of pins with the hole in the mode gear and communication gear, and install the drive gear ass'y.
(By aligning the hole in the gear, the engagement phases of the drive gears will coincide.)



4-20-1. Cam motor ass'y replacement

(1) Remove the screw, then remove the cam motor ass'y. (Fig. 1)

Note on installation

①Align the groove of the cam motor ass'y with part **a** of the drive gear ass'y. (Fig. 1)

②Align the hole in the cam motor ass'y with the projection on the drive gear ass'y. (Fig. 1)

③Set the cam motor parallel to the **b** face of the drive gear ass'y, then screw it fixed. (Fig. 2)

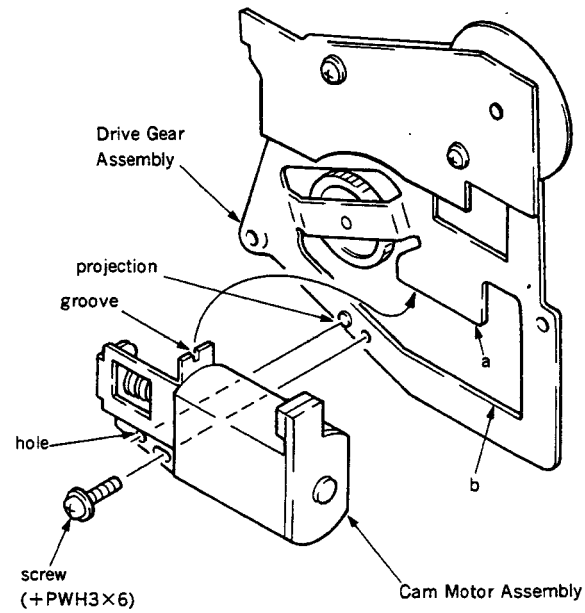


Fig. 1

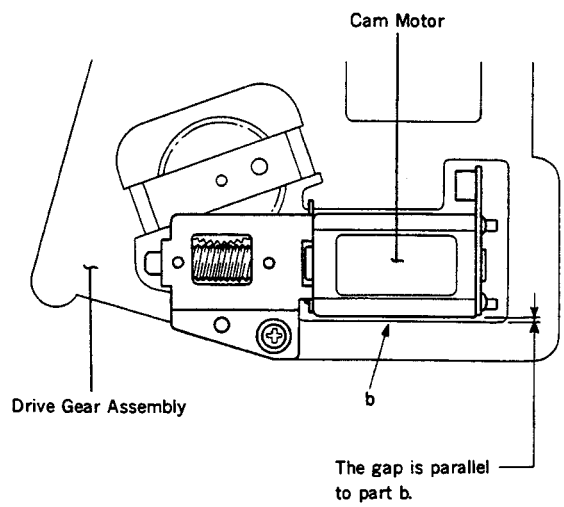


Fig. 2

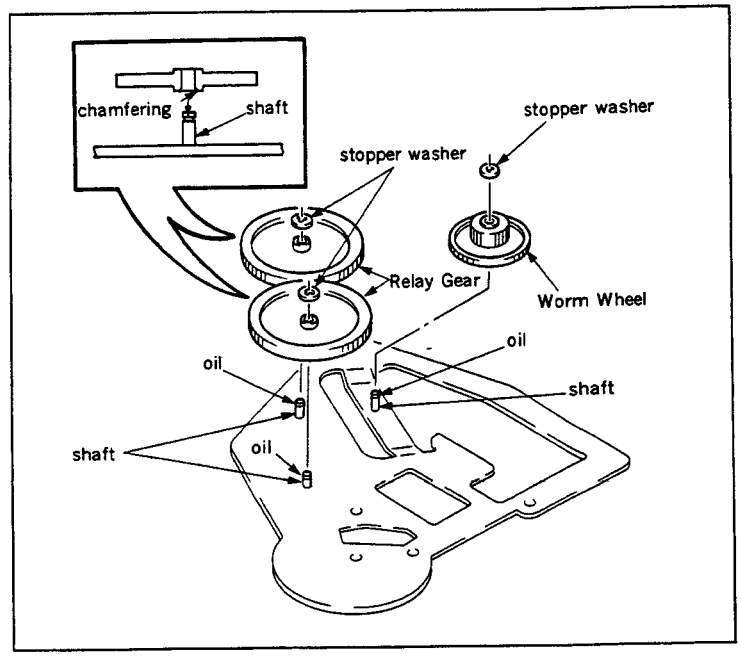
4-20-2. Relay gear and worm wheel replacement

Tool :
Sony oil (7-661-018-18)

(1) Remove the stopper washer, then remove the relay gear and the worm wheel.

Note on installation

①Clean the shafts with cleaning fluid, then apply 1/2 a drop of Sony oil.



4-21. MODE GEAR (2) ASS'Y REPLACEMENT

Tool :
RG reference pin (2) (J-6380-050-A)

(1) Remove the drive gear ass'y referring to sub-section 4-20.
(2) Remove the stopper washer, then remove the mode gear ass'y from the shaft. (Fig. 1)

Note on installation

①Push the loading gear (right) in the direction of arrow A. Pass RG reference pin (2) through the hole in the mode gear ass'y, then align it with the ※ mark on the chassis, then engage the mode gear ass'y with the FR drive gear, and install it. (Figs. 1 and 2)
(By aligning the hole in the gear, the engagement phases of the mode gear ass'y and the FR drive gear will coincide.)
②Align the engagement phases of the gears, and install the drive gear ass'y referring to sub-section 4-20.

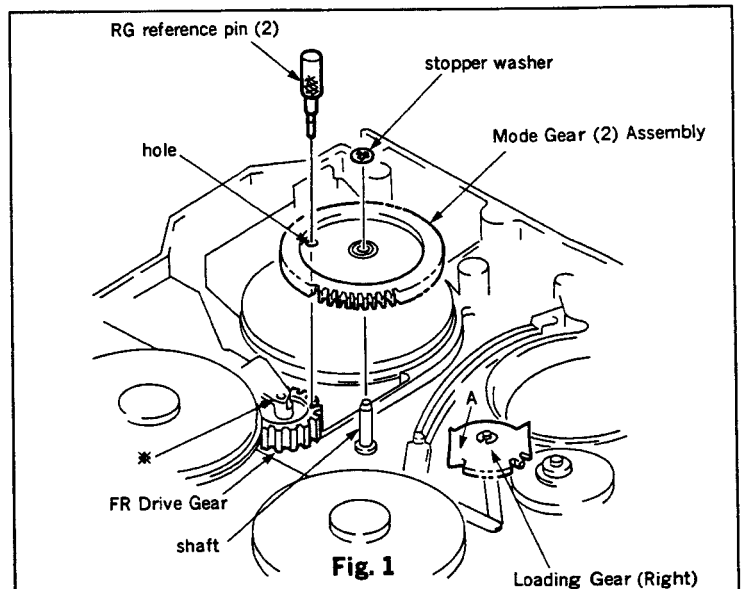


Fig. 1

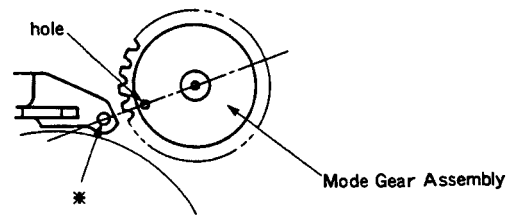


Fig. 2

4-22. LOADING GEAR (RIGHT) ASS'Y REPLACEMENT

Tool:
MOLYKOTE grease EM-30L (J-6090-014-A): DOW CORNING Corp.

(1) Remove the drive gear ass'y referring to sub-section 4-20.
(2) Remove the mode gear ass'y referring to sub-section 4-21.
(3) Rotate the gear part of the loading gear (right) by hand in the direction of the arrow to the position shown in Fig. 1.
(4) Remove the two stopper washers, then remove the loading gear (right) ass'y. (Fig. 2)

Note: Take care not to deform the arm of the loading gear (right) ass'y.

Note on installation

①Align the mark on the loading gear (left) with the center point between two teeth on the loading gear (right), then install the gears on the shaft of the chassis and the shaft of the shuttle (right). (Fig. 2, 3)
②Smear a small amount of Sony grease to the part of the loading gear (right) ass'y indicated in the figure. (Fig. 2)
③Align the engagement phases of the mode gear ass'y and the drive gear ass'y ,then install the gear ass'ys, referring to sub-section 4-20 and 4-21.

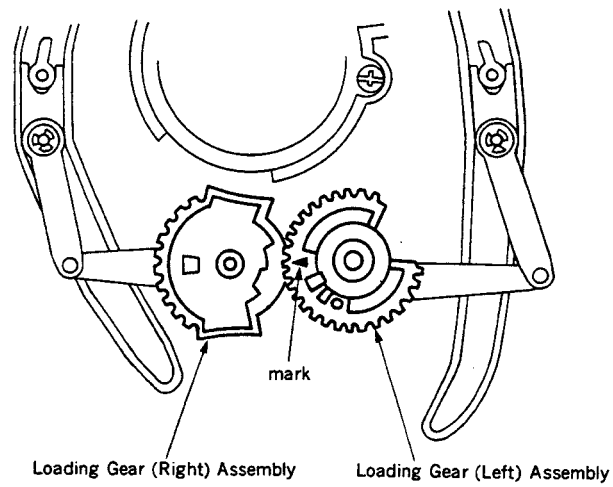


Fig. 1

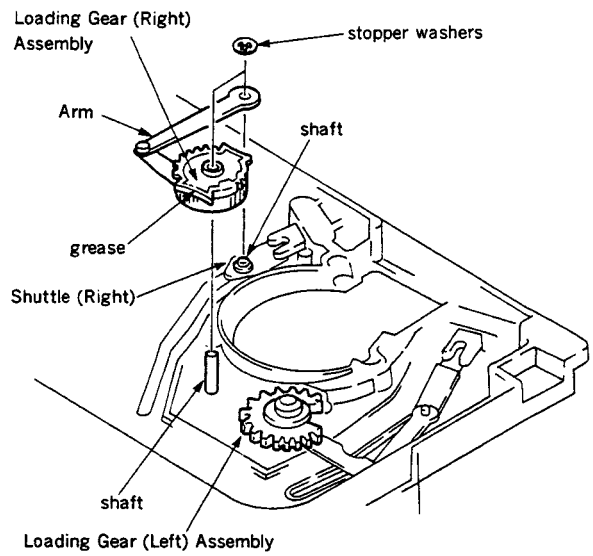


Fig. 2

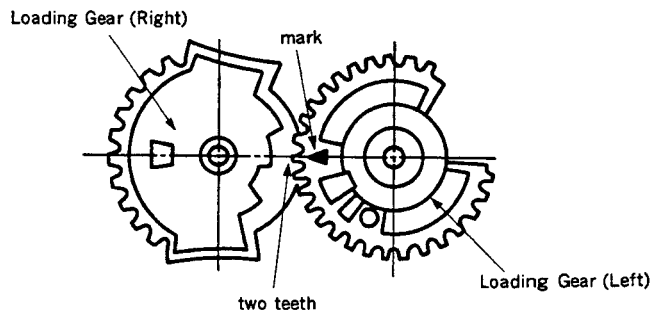


Fig. 3

4-23. LOADING GEAR (LEFT) ASS'Y REPLACEMENT

(1) Remove the cam motor ass'y referring to subsection 4-20-1. (Fig. 1)
(2) Rotate the worm wheel of the drive gear ass'y clockwise with the fingers until the loading gear (left) ass'y moves to the position shown in Fig. 2. (Figs. 1 and 2)
(3) Remove the two stopper washers, then remove the loading gear (left) ass'y. (Fig. 3)

Note: Take care not to deform the arm of the loading gear (left) ass'y.

Note on installation

①Align the mark on the loading gear (left) with the center point between two teeth of the loading gear (right), then install the gears on the shaft of the chassis and the shaft of the shuttle (left). (Fig. 4)

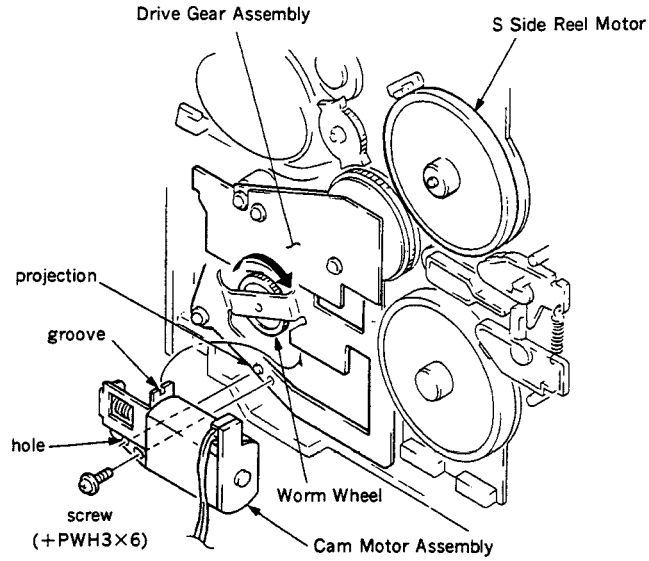


Fig. 1

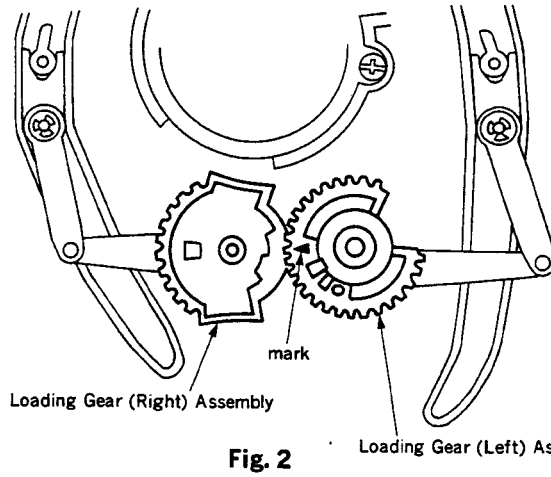


Fig. 2

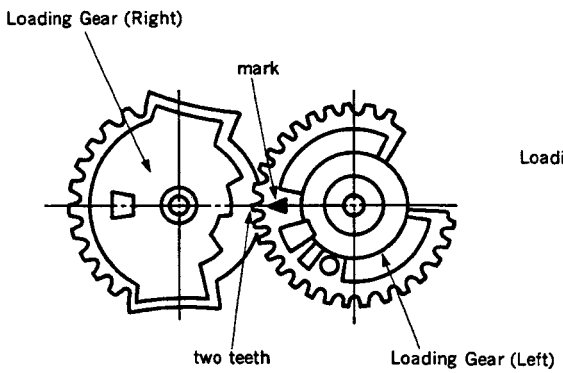


Fig. 4

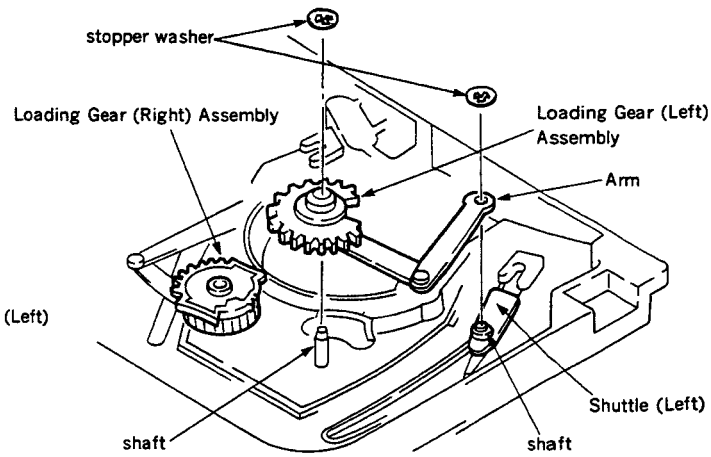


Fig. 3

4-24. SHUTTLE (RIGHT) ASS'Y REPLACEMENT

Tools :
Reference plate (J-6380-080-A)
Master block (J-6380-550-A)
Guide adjustment screwdriver (J-6082-044-A or J-6080-811-A)
Remote controller (RM-V100 or RM-V200 or SVRM-100)

(1) Remove the cassette compartment referring to sub-section 4-2.
(2) Refer to sub-section 4-23, then move the loading gear (right) ass'y to the position shown in Fig. 1.
(3) Remove the stopper washer, then remove the arm of the loading gear (right) ass'y from the shaft of the shuttle plate ass'y. (Fig. 2)

Note : Take care not to deform the arm of the loading gear (right) ass'y.

(4) Remove the screw, then remove the shuttle (right) ass'y and the shuttle plate ass'y. (Fig. 3)

Note : Move the shuttle (right) ass'y in the unthreading end direction to ensure that it does not strike the drum ass'y, then remove it.

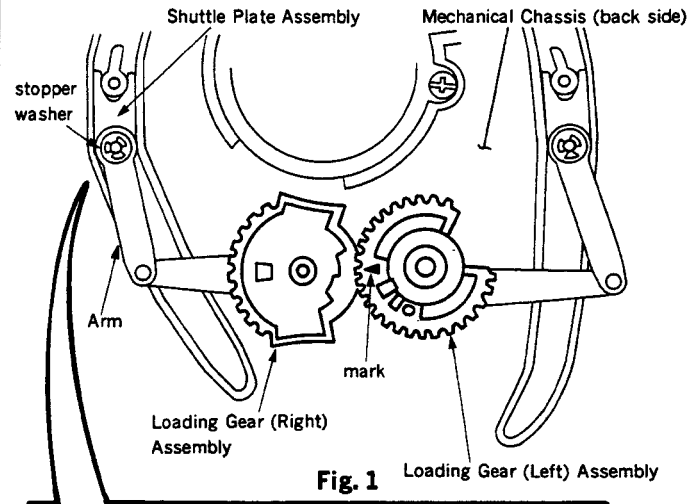


Fig. 1

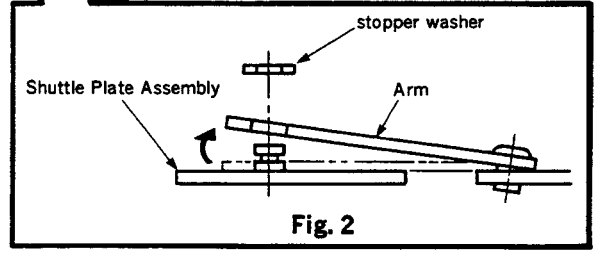


Fig. 2

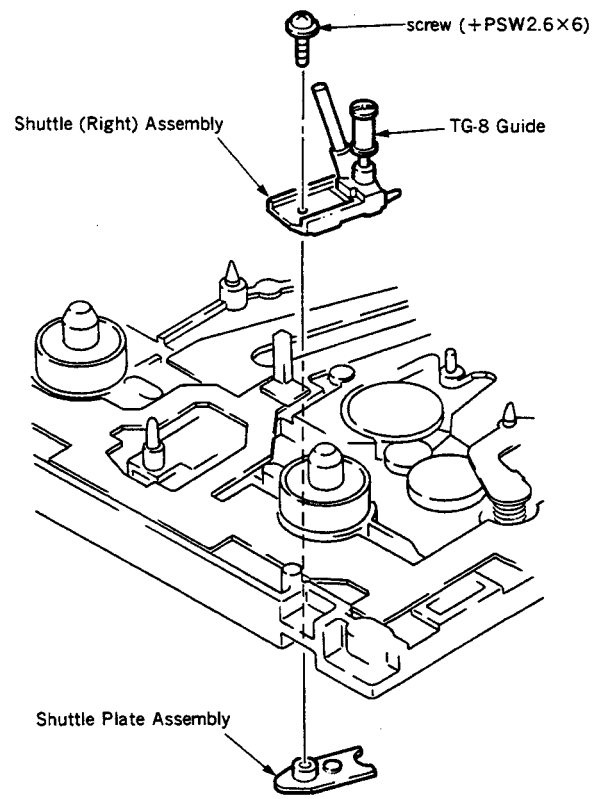


Fig. 3

Note on installation

①Put the screw as shown in Fig. 4 when installing the shattle (right) ass'y to the shattle plate ass'y.

[Adjustment after replacement]

TG-8 guide height adjustment

(1) Press the PLAY button on the remote controller for the threading completion mode. (Refer to Sec. 4-1-3.)
(2) Clean the mounting face of the reference plate and the four mounting faces on the chassis with cleaning fluid.
(3) Install the reference plate on the chassis. (Fig. 5) (If the reference plate moves about when the top of the plate is touched gently manually at a point near where it is installed on the chassis, turn the adjustment screw until the plate no longer moves about.)
(4) Clean the top of the reference plate and the adjustment face of the master block with cleaning fluid.
(5) Set the master block with the H10 stamped mark upward, then place it against the TG-8 guide from the direction shown in the figure. (Fig. 5)
(6) Using the guide adjustment screwdriver, turn the upper flange on the guide until the specification is satisfied. (Fig. 6)
(7) Perform tape path alignment of Sec. 6.

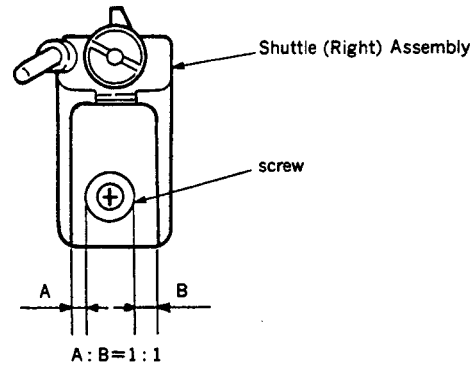


Fig. 4

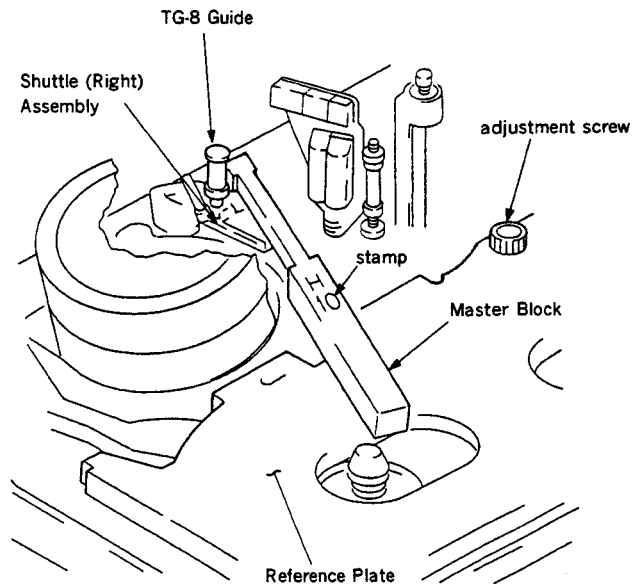


Fig. 5

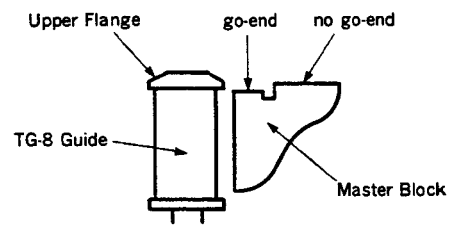


Fig. 6

Spec. :
The height of the upper flange must pass at the go-end of the master block and stop at the no go-end.

4-25. TG-8 GUIDE REPLACEMENT

Tools :
Reference plate (J-6380-080-A)
Master block (J-6380-550-A)
Guide adjustment screwdriver (J-6082-044-A or J-6080-811-A)
Hex wrench screwdriver (width 0.89 mm)
Remote controller (RM-V100 or RM-V200 or SVRM-100)

(1) Remove the cassette compartment referring to sub-section 4-2.
(2) Loosen the set screw with a hex wrench. (Fig. 1)
(3) Rotate the TG-8 guide counterclockwise with the guide adjustment screwdriver, and remove it. (Fig. 1)

Note on installation

①Clean the mounting face of the reference plate and the four mounting faces on the chassis with cleaning fluid.
②Install the reference plate on the chassis. (Fig. 2) (If the reference plate moves about when the top of the plate is touched gently with the fingers at a point near where it is installed on the chassis, turn the adjustment screw until the plate no longer moves about.)
③Clean the top of the reference plate and the adjustment face of the master block with cleaning fluid.
④Set the master block with the H10 stamped mark upward, then place it against the TG-8 guide from the direction shown in the figure, and tighten the set screw until the upper flange is roughly the same height as the go-end of the master block. (Figs. 2 and 3)
(Tightening torque of set screw : 78×10^{-3}~98×10^{-3} N•m (0.8~1 kg•cm))

[Adjustment after replacement]
(1) Perform TG-8 guide height adjustment referring to sub-section 4-24.
(2) Perform tape path alignment of section 6.

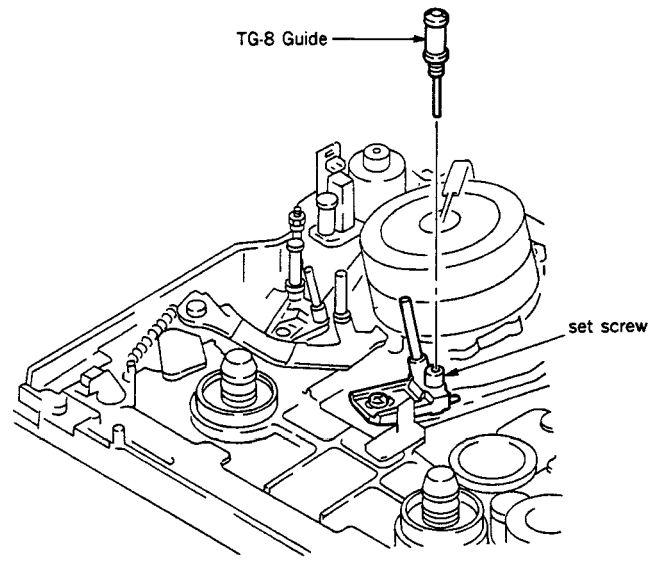


Fig. 1

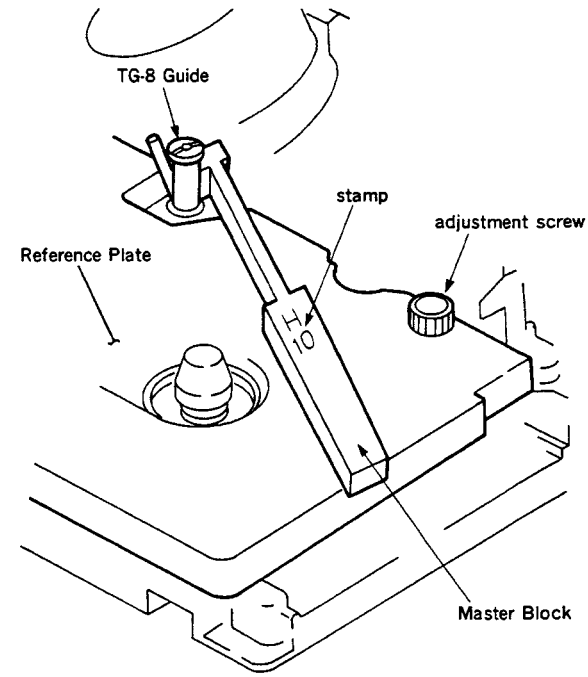


Fig. 2

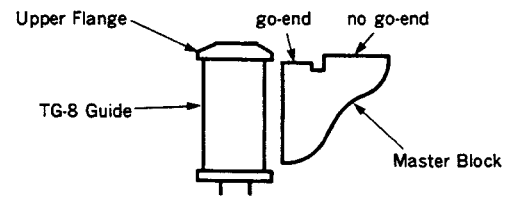


Fig. 3

4-26. SHUTTLE (LEFT) ASS'Y REPLACEMENT

Tools :
Reference plate (J-6380-080-A)
Master block (J-6380-550-A)
Guide adjustment screwdriver (J-6082-044-A or J-6080-811-A)
Remote controller : (RM-V100 or RM-V200 or SVRM-100)

(1) Remove the cassette compartment according to sub-section 4-2.
(2) Remove the stopper washer, then remove the arm of the loading gear (left) ass'y from the shaft of the shuttle plate ass'y. (Fig. 1)

Note : Take care not to deform the arm of the loading gear (left) ass'y.

(3) Remove the screw, then remove the shuttle (left) ass'y and the shuttle plate ass'y. (Fig. 2)

Note on installation

①The tension regulator ass'y and shuttle (left) ass'y must be in the position shown in Fig. 3.
②Put the screw as shown in Fig. 4 when installing the shattle (left) ass'y to the shattle plate ass'y.

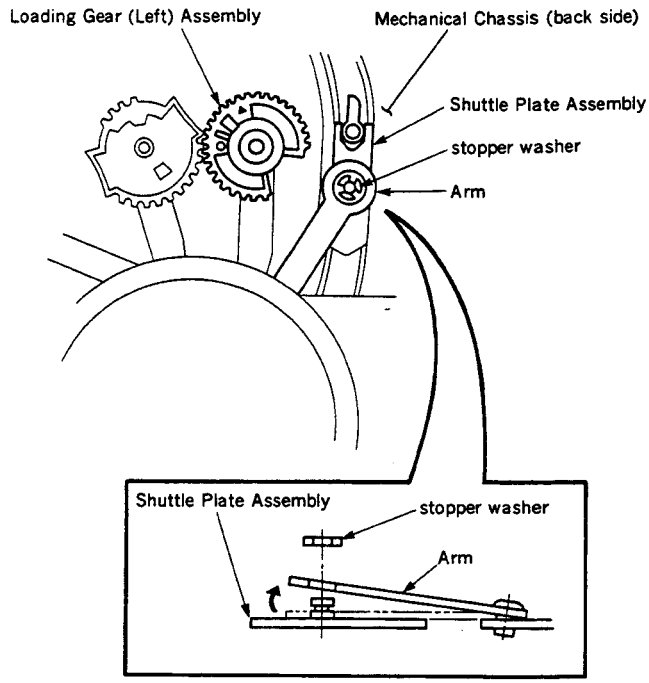


Fig. 1

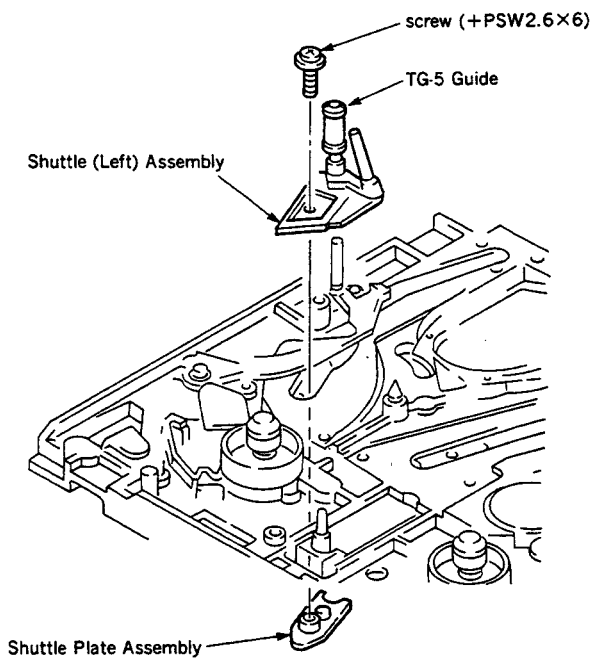


Fig. 2

[**Adjustment after replacement**]

TG-5 guide height adjustment

(1) Press the PLAY button on the remote controller for the threading completion mode. (See sub-section 4-1-3.)
(2) Clean the mounting face of the reference plate and the four mounting faces on the chassis with cleaning fluid.
(3) Install the reference plate on the chassis. (Fig. 5) (If the reference plate moves about when the top of the plate is touched gently with the fingers at a point near where it is installed on the chassis, turn the adjustment screw until the plate no longer moves about.)
(4) Clean the top of the reference plate and the adjustment face of the master block with cleaning fluid.
(5) While moving the stabilizer in the direction of the arrow, set the master block with the H10 stamped mark upward, then place it against the TG-5 guide from the direction shown in the figure. (Fig. 5)
(6) Using the guide adjustment screwdriver, turn the upper flange on the guide until the specification is satisfied. (Fig. 6)
(7) Perform tape path alignment of section 6.

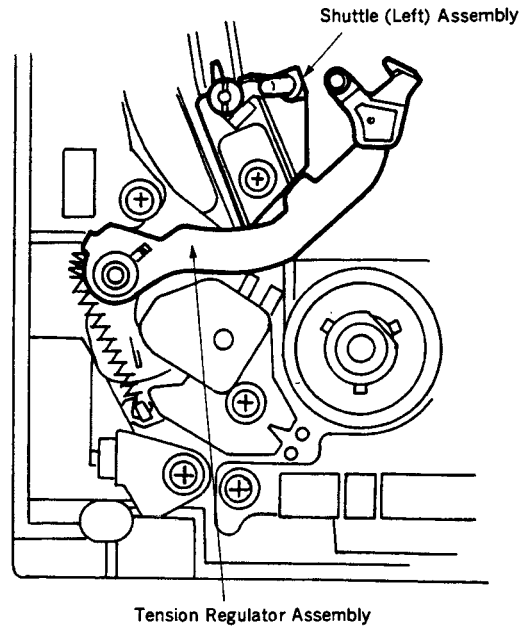


Fig. 3

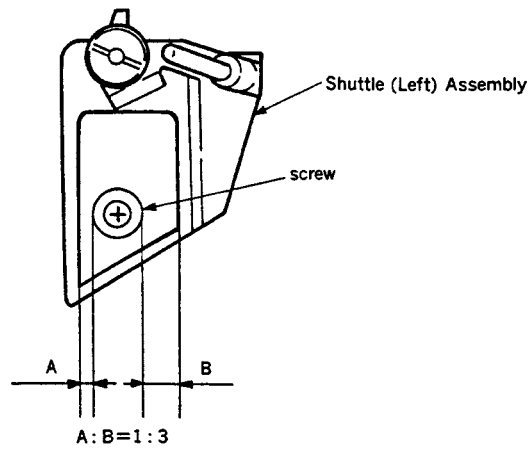


Fig. 4

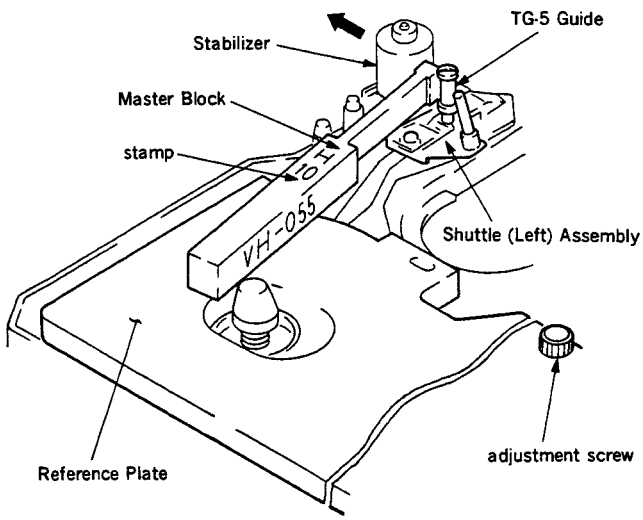


Fig. 5

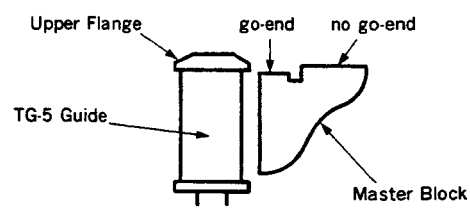


Fig. 6

Spec. :
The height of the upper flange must pass at the go-end of the master block and stop at the no go-end.

4-27. TG-5 GUIDE REPLACEMENT

Tools :
Reference plate (J-6380-080-A)
Master block (J06380-550-A)
Guide adjustment screwdriver (J-6082-044-A or J-6080-811-A)
Hex wrench screwdriver (width 0.89 mm)
Remote controller (RM-V100 or RM-V200 or SVRM-100)

(1) Remove the cassette compartment referring to sub-section 4-2.
(2) Loosen the set screw with a hex wrench. (Fig. 1)
(3) Rotate the TG-5 guide counterclockwise with the guide adjustment screwdriver, and remove it. (Fig. 1)

Note on installation

①Clean the mounting face of the reference plate and the four mounting faces on the chassis with cleaning fluid.
②Install the reference plate on the chassis. (Fig. 2) (If the reference plate moves about when the top of the plate is touched gently with the fingers at a point near where it is installed on the chassis, turn the adjustment screw until the plate no longer moves about.)
③Clean the top of the reference plate and the adjustment face of the master block with cleaning fluid.
④Set the master block with the H10 stamped mark upward, then place it against the TG-5 guide from the direction shown in the figure, and tighten the set screw untile the upper flange is roughly the same height as the go-end of the master block. (Figs. 2 and 3)
(Tightening torque of set screw : 78×10^{-3}~98×10^{-3} N•m (0.8~1 kg•cm))

[Adjustment after replacement]
(1) Perform TG-5 guide height adjustment referring to sub-section 4-26.
(2) Perform tape path alignment of section 6.

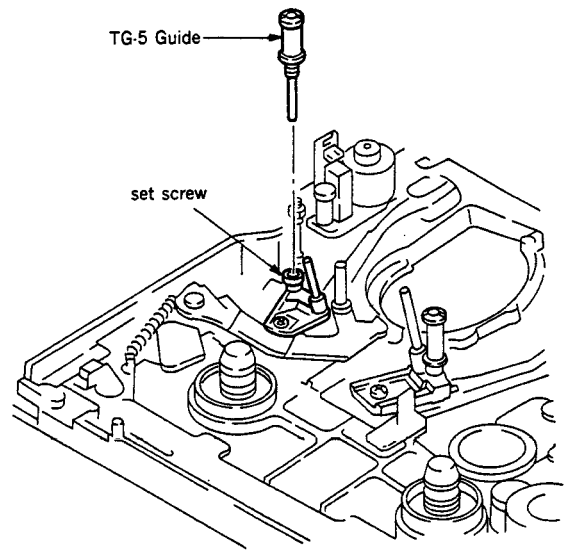


Fig. 1

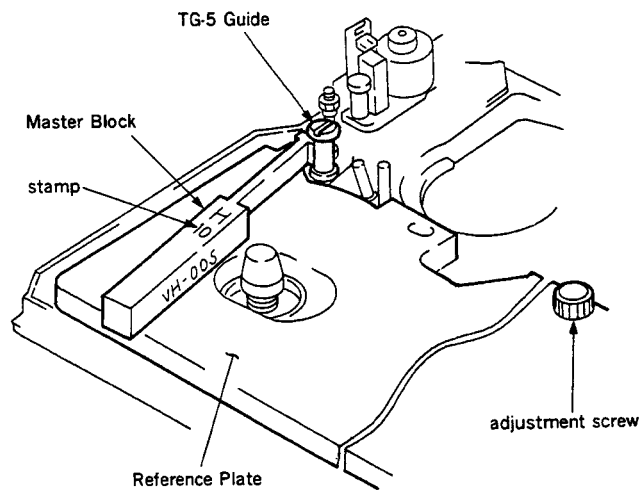


Fig. 2

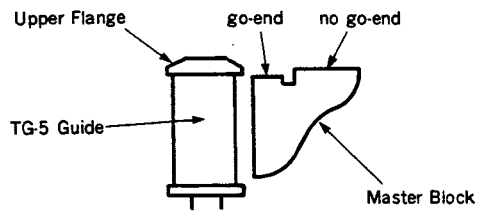


Fig. 3

4-28. SLIDE RAIL (R) REPLACEMENT

(1) Remove the cassette compartment referring to sub-section 4-2.
(2) Remove the C roller ass'y referring to sub-section 4-3.
(3) Remove the shuttle (right) ass'y according to sub-section 4-24.
(4) Disconnect connectors CN655, CN656, CN657 and CN658 on the HN-198 board.
(5) Remove the screws and remove the HN-198 board.
(6) Remove the two screws, then remove the shuttle holder in the direction of arrow A. (Fig. 1)
(7) Remove claws **a**, **b** and **c** and also the two parts with the square hole on slide rail (R) from the chassis, then remove the slide rail (R). (Fig. 1)

Note on installation

①While moving the slide rail in the direction of arrow B, fit claw **a** into the chassis, then insert projection **a** into the hole in the chassis. (Fig. 1)
②Next, align projections **b** and **c** with the holes in the chassis, then insert claws **b** and **c** and also the two parts with the square holes into the chassis. (Figs. 2 and 3)

[Adjustment after replacement]
(1) Perform tape path alignment of section 6.

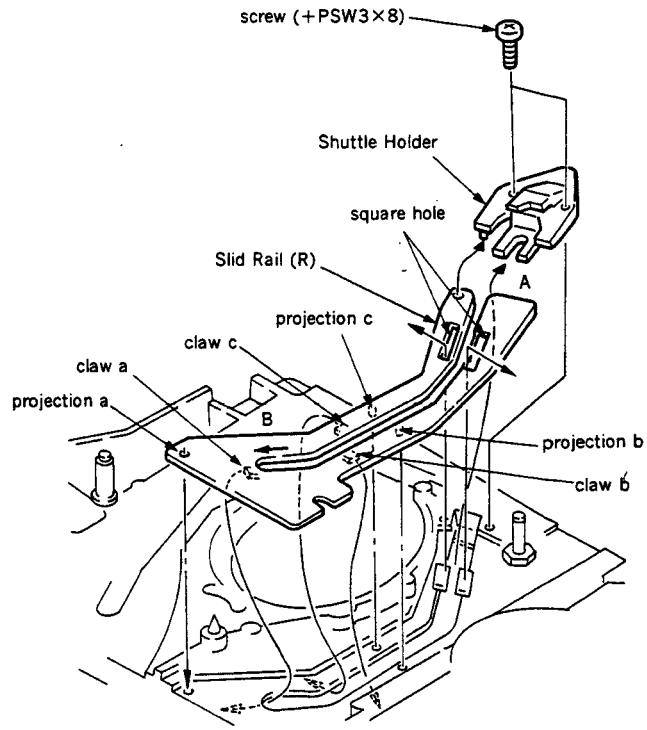


Fig. 1

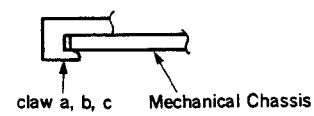


Fig. 2

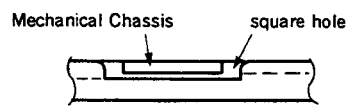


Fig. 3

4-29. SLIDE RAIL (L) REPLACEMENT

(1) Remove the cassette compartment referring to sub-section 4-2.
(2) Remove the tension regulator ass'y and the STD ass'y referring to sub-section 4-7.
(3) Remove the tape stabilizer ass'y referring to sub-section 4-9.
(4) Remove the shuttle (left) ass'y referring to sub-section 4-26.
(5) Remove the two screws, then remove the shuttle holder in the direction of arrow A. (Fig. 1)
(6) Remove claws **a**, **b** and **c** and the two parts with the square hole on slide rail (L) from the chassis, then remove the slide rail (L). (Fig. 1)

Note on installation

①While moving the slide rail in the direction of arrow B, fit claw **a** into the chassis, then insert projection **a** into the hole in the chassis. (Fig. 1)
②Next, align projections **b** and **c** with the holes in the chassis, then insert claws **b** and **c** and also the two parts with the square hole into the chassis. (Figs. 2 and 3)

[Adjustment after replacement]

(1) Adjust the height of the TG-3 guide once again referring to sub-section 4-9.
(2) Adjust the position of the tension regulator once again referring to sub-section 4-7.
(3) Adjust the tape tension once again referring to sub-section 6-2.
(4) Perform tape path alignment of section 6.

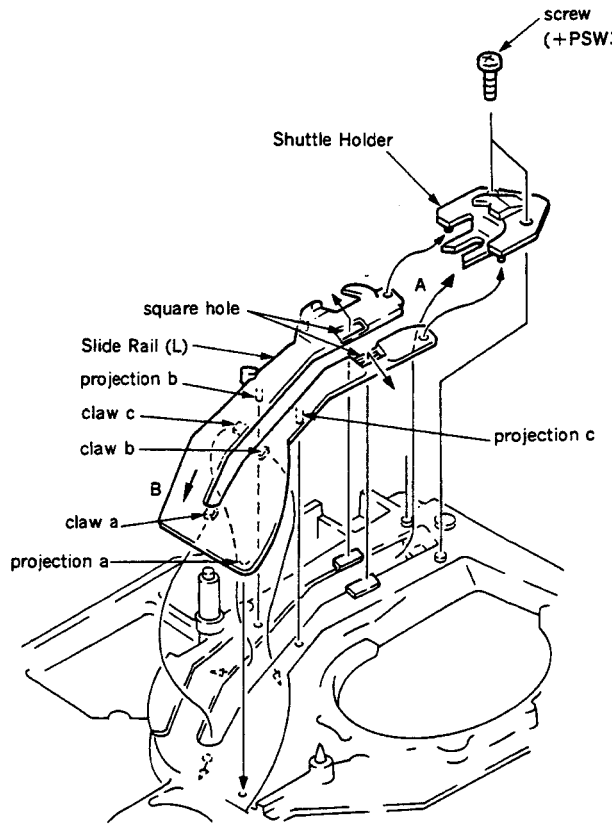


Fig. 1

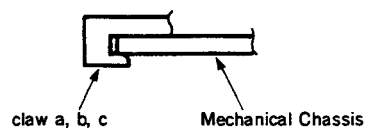


Fig. 2

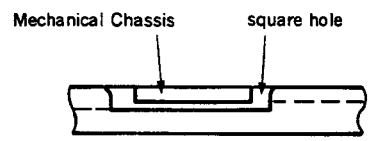


Fig. 3

4-30. CAPSTAN MOTOR REPLACEMENT

(1) Remove the drive gear ass'y referring to sub-section 4-20.
(2) Disconnect the 9-pin connector from the capstan motor board.
(3) Remove the three screws, then remove the capstan motor.

Note on installation

①Clean the three mounting faces at the back of the chassis and the three mounting faces of the capstan motor with cleaning fluid.
②Take care not to damage the capstan shaft.

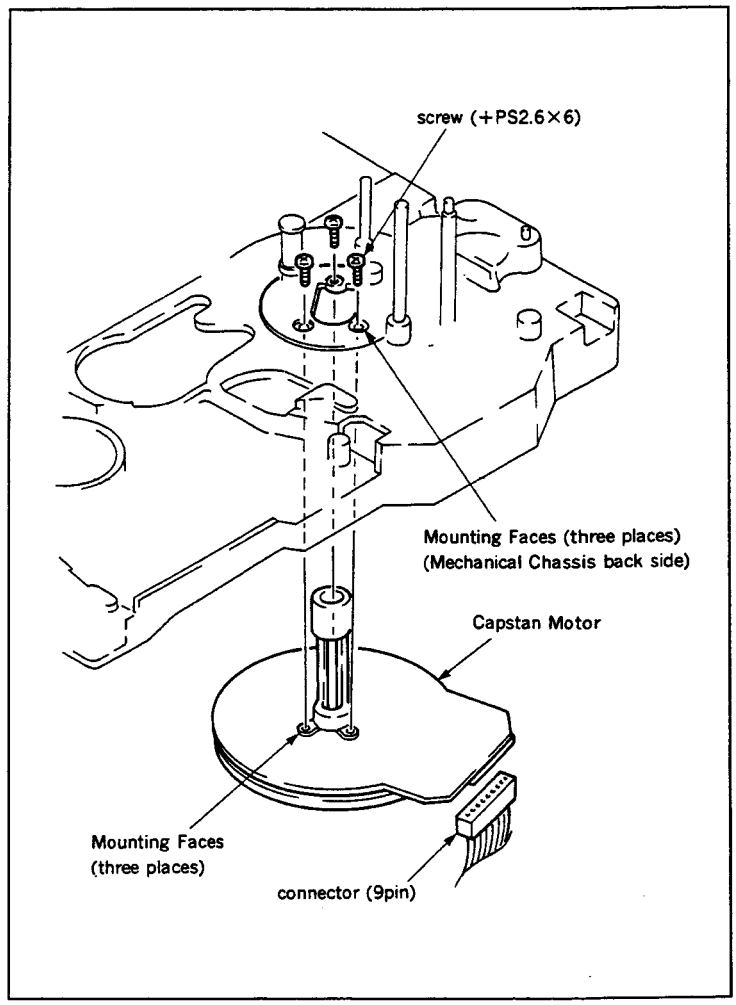
[Adjustment after replacement]

Tape Path Alignment

(1) Perform tape path alignment of section 6.

Electrical Alignment

(2) Perform Capstan FG Duty Ratio adjustment of Sub-Section 9-1.



4-31. PINCH SOLENOID ASS'Y REPLACEMENT

(1) Disconnect connector CN121 from the CN-1053 board, then remove the harness from the Harness clamp of chassis. (Fig. 1)
(2) Pull out the pinch roller block ass'y referring to Sec. 4-12.
(3) Remove the screw, then remove the retainer and the poly-slider-washer. (Fig. 2)
(4) Remove the two screws, then raise the pinch solenoid ass'y and remove it. (Fig. 2)

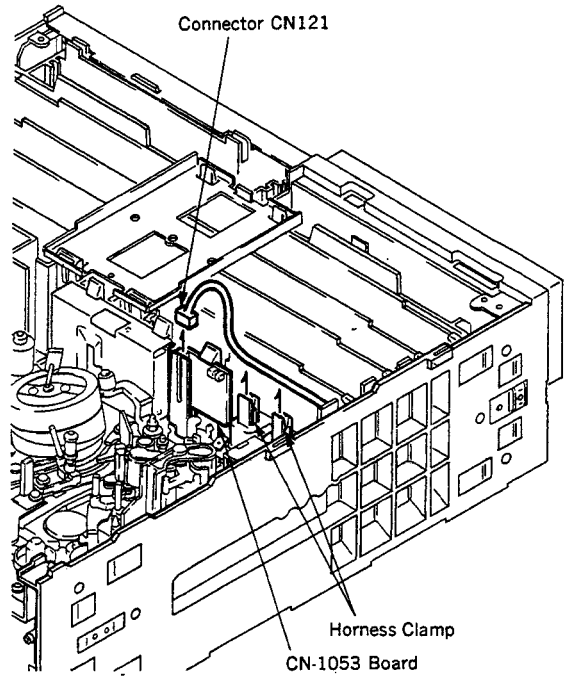


Fig. 1

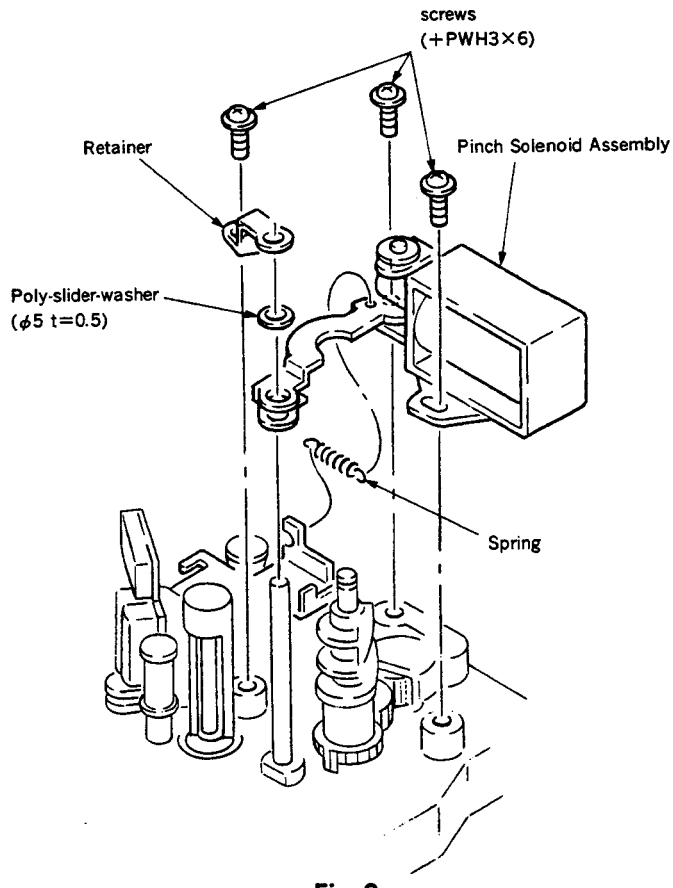


Fig. 2

(5) Remove the two screws, then remove the solenoid from the solenoid base. (Fig. 3)
(6) Remove the two stopper washers, then remove the solenoid pin and the pressure lever from the iron core. (Fig. 3)

Note on installation

①Align the longitudinal hole of the pinch solenoid ass'y with the boss of the mechanical chassis, then screw in the fixing screws but do not tighten them hard. (Fig. 4)

②Insert a flat blade screwdriver at the point indicated by A in the drawing, then turn it clockwise so that the pinch solenoid ass'y moves in the direction of the arrow as far as it will go, and tighten the two screws hard. (Fig. 4)

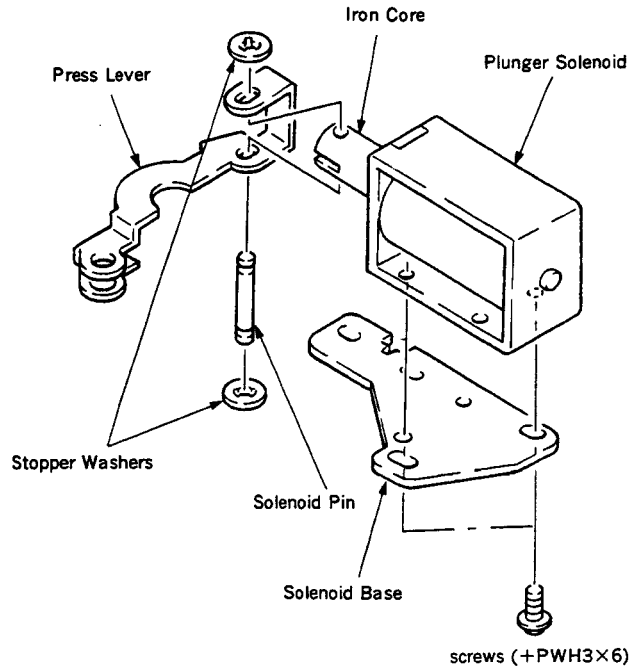


Fig. 3

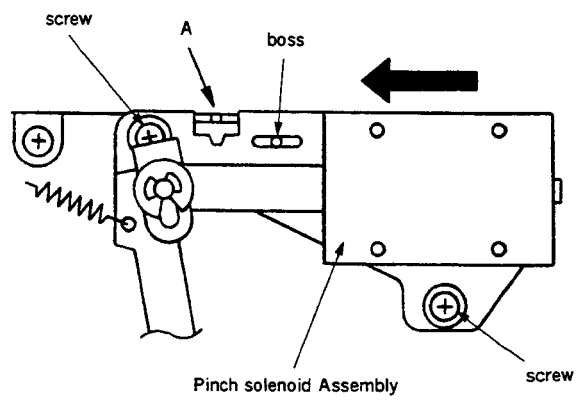


Fig. 4

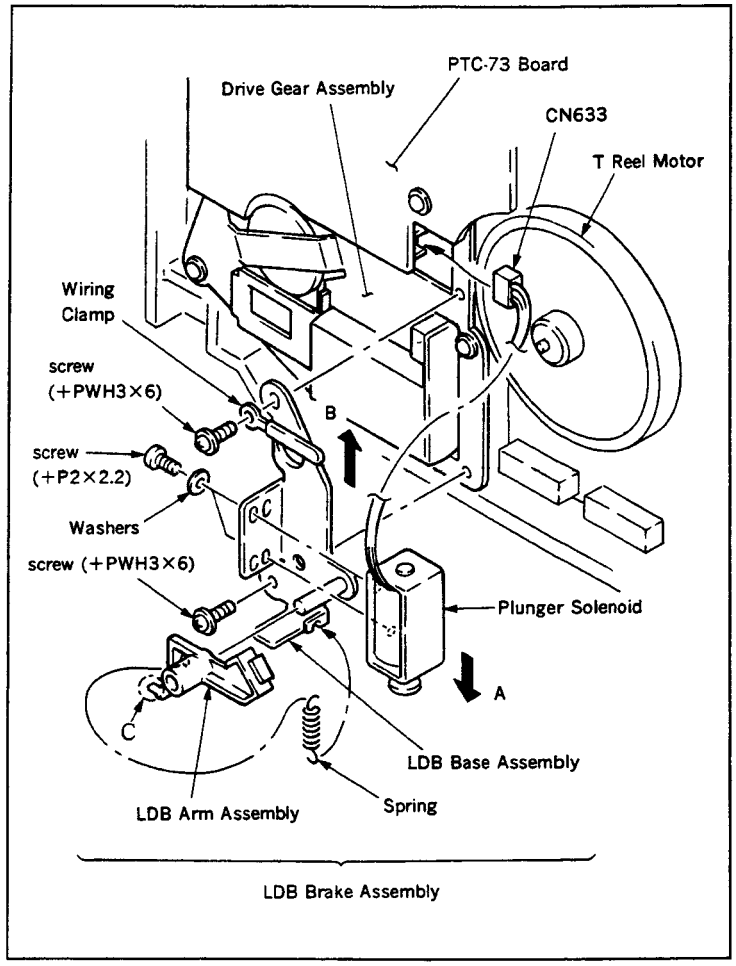
4-32. LDB BRAKE ASS'Y REPLACEMENT

Tool :
MOLYKOTE grease EM-30LG (J-6090-014-A)

(1) Disconnect connector CN633 from the PTC-73 board.
(2) Remove the two screws and the wiring clamp, then remove the LDB brake ass'y.
(3) Remove the two screws and the two washers, then remove the plunger solenoid from the LDB base ass'y.
(4) Remove the spring, then pull out the LDB arm ass'y from the LDB base ass'y.

Note on installation

①When installing the plunger solenoid on the LDB base ass'y first temporarily install it with the two screws and two washers, then move it fully in the direction of arrow A and tighten the screws hard.
②When installing the LDB brake ass'y on the drive gear ass'y, temporarily install it with the two screws and the wiring clamp, then move it fully in the direction of arrow B and tighten the screws hard.
③Fix the harness of the plunger solenoid with the wiring clamp in such a way that it does not touch the T reel motor.
④Apply a dab of MOLYKOTE grease to part C shown in the drawing after replacing the LDB arm ass'y with a new one.



SECTION 5
TORQUE AND TAPE TENSION ALIGNMENT

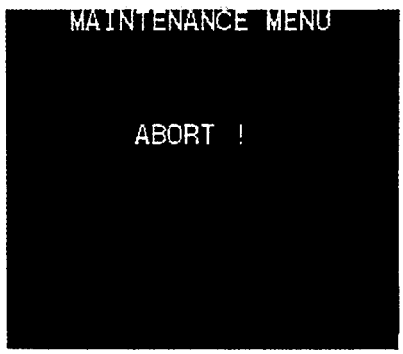
5-1. S/T REEL TABLE TORQUE ADJUSTMENT

Tools:
Torque gauge (H-7099-039-H)
Torque gauge adapter (H-7099-035-H)

Adjustment Procedure:

(1) Remove the cassette compartment referring to Sec.2-6.
(2) Set No.1 and No.3 switches of DIP switch S101/ SS-58 board (C-1) to ON. (Fig.1)
(3) Press the cassette down switch manually, and while keeping it depressed, turn the POWER switch ON. (Fig.2)
(4) Put the VTR in the PLAY mode.

Note : If the MENU key is pressed without pressing the SET (YES) key in the following adjustments, "ABORT!" appears on the monitor display without saving the new adjustment data. The data before starting the adjustment is saved and the maintenance menu terminates.



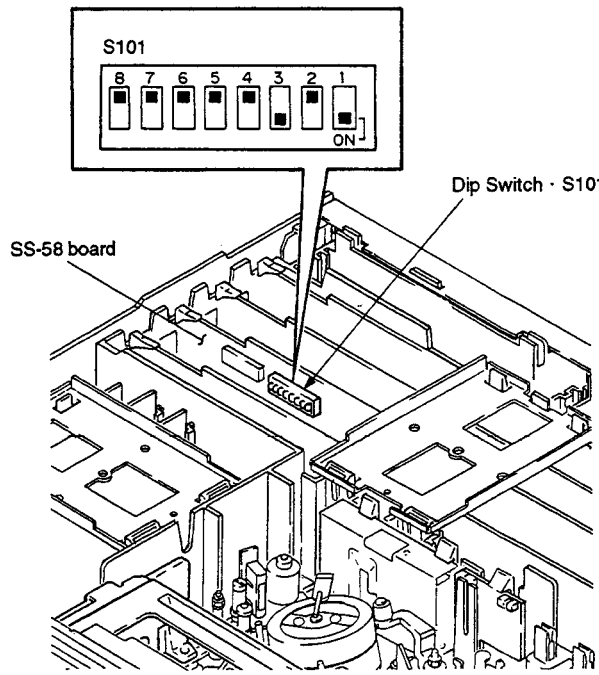


Fig. 1

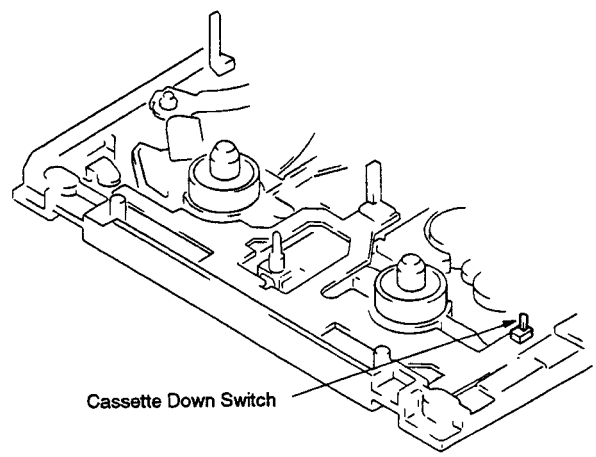
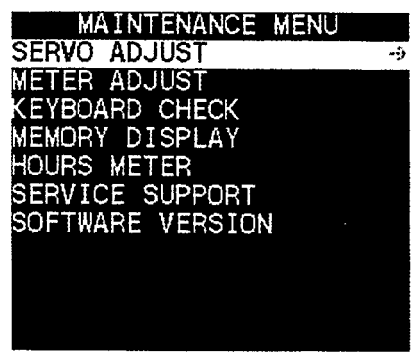


Fig. 2

(5) Hold down the (←) key and press the MENU key to display the maintenance menu on the monitor screen.
(6) Press the (↑) (↓) keys to select SERVO ADJUST from the menu.
(7) Press the (→) key to display the next screen.



S side reel table adjustment

(8) Stop the S side reel table manually, and install the torque meter. (Fig.3)

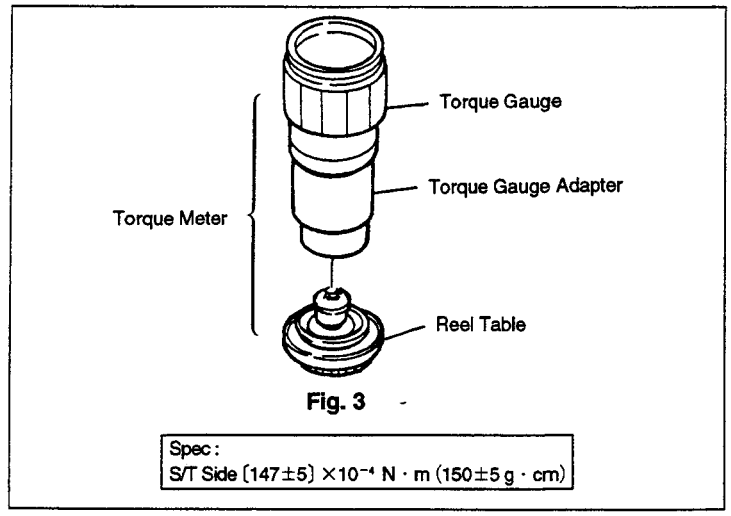
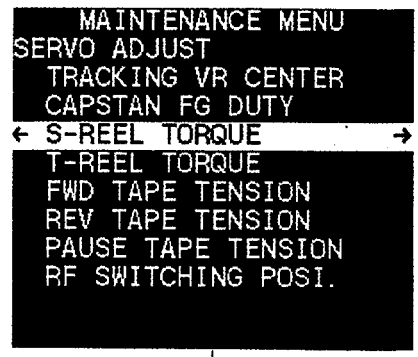


Fig. 3

Spec:
S/T Side (147±5) ×10⁻⁴ N · m (150±5 g · cm)

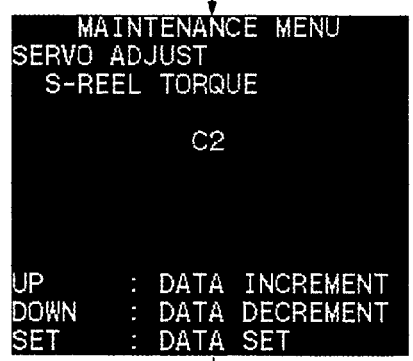
(9) Press the (↑) (↓) keys to select S-REEL TORQUE from the menu.

(10) Press the (→) key to display the next screen.

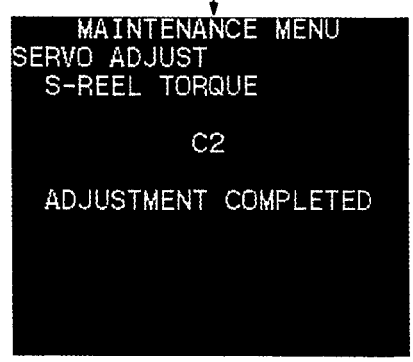


(11) Press the (↑) (↓) keys so that the value on the torque meter meet the required specification.

(12) After completion of adjustments, press the SET key and confirm to display the next screen.



(13) Press the (←) key to display the next screen.

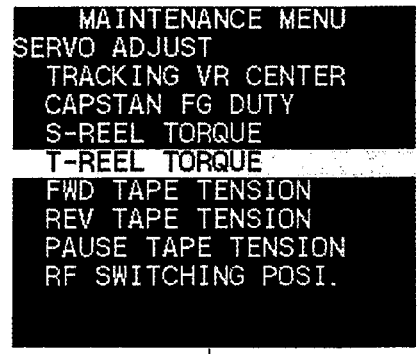


T side reel table adjustment

(14) Stop the T side reel table manually, and install the torque meter. (Fig.3)

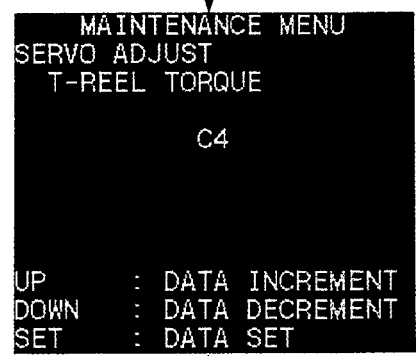
(15) Press the (↑) (↓) keys to select T-REEL TORQUE from the menu.

(16) Press the (→) key to display the next screen.

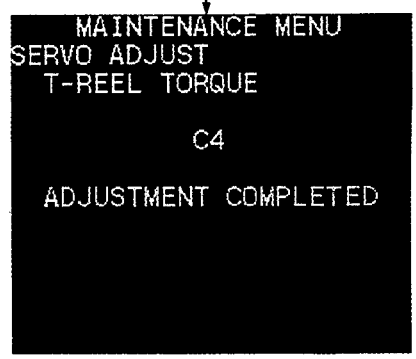


(17) Press the (↑) (↓) keys so that the value on the torque meter meet the required specification.

(18) After completion of adjustments, press the SET key and confirm to the next screen.



(19) Press the MENU key to finish the menu.



(20) Go on with tape tension adjustment referring to Sec.5-2.

5-2. TAPE TENSION ADJUSTMENT

Be sure to perform this adjustment after replacing a part of the tape path system, such as the drum or tension regulator. Also, be sure to check the tape tension when performing a periodic check.

Tools:
Tentelometer, T2-H7-UMC
S-VHS cassette tape, T-120

Adjustment Procedure:

(1) To prevent the tape from touching the tentelometer, rotate the tape stabilizer in the direction of the arrow until it strikes the chassis (left), then insert the bamboo skewer, or the like, at point "a" shown in the figure, and fix it in place. (Fig.1)
(2) Insert a cassette tape (T-120) in the VTR, then put the VTR into the PLAY mode.
(3) Install the tentelometer between the TG-3 guide and the TG-5 guide. (Fig.1)

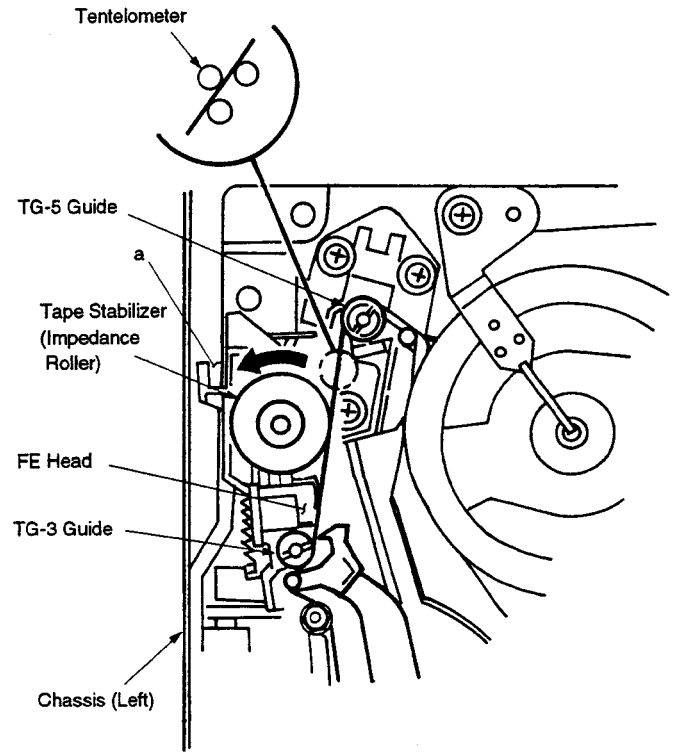


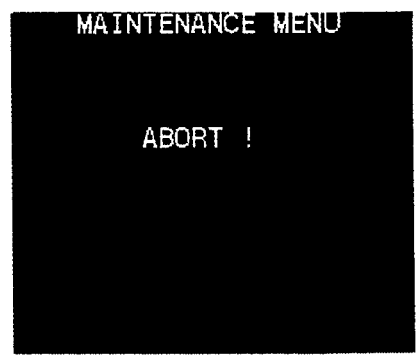
Fig. 1

Spec.1 : Tape tension in the PLAY mode
〔245±25〕 $\times 10^{-3}$N (25±2.5 g)

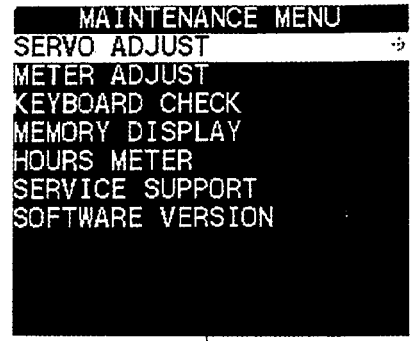
Spec.2 : Tape tension in the SEARCH REV mode
〔392±25〕 $\times 10^{-3}$N (40±2.5 g)

Spec.3 : Tape tension in the PAUSE mode
〔216±20〕 $\times 10^{-3}$N (22±2 g)

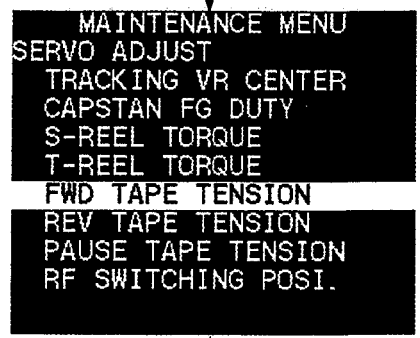
Note : If the MENU key is pressed without pressing the SET (YES) key in the following adjustments, "ABORT!" appears on the monitor display without saving the new adjustment data. The data before starting the adjustment is saved and the maintenance menu terminates.



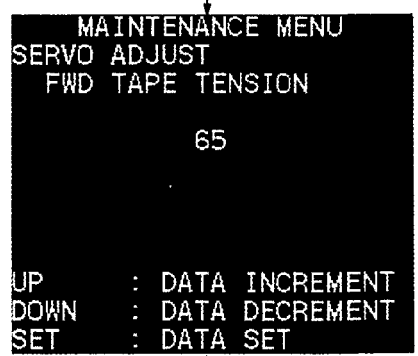
(4) Hold down the (←) key and press the MENU key to display the maintenance menu on the monitor screen.
(5) Press the (↑) (↓) keys to select SERVO ADJUST from the menu.
(6) Press the (→) key to display the next screen.



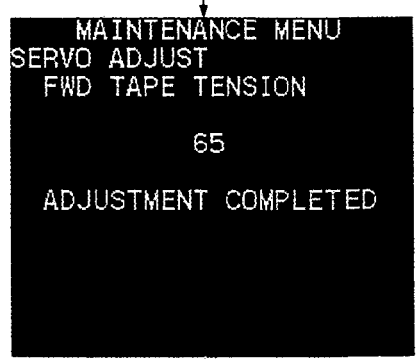
(7) Press the (↑) (↓) keys to select FWD TAPE TENSION from the menu.
(8) Press the (→) key to display the next screen.



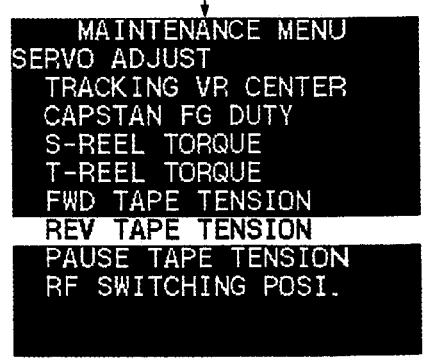
(9) Press the (↑) (↓) keys so that the value on the tentelometer meet the required specification 1.
(10) Press the SET key,and confirm to display the next screen.



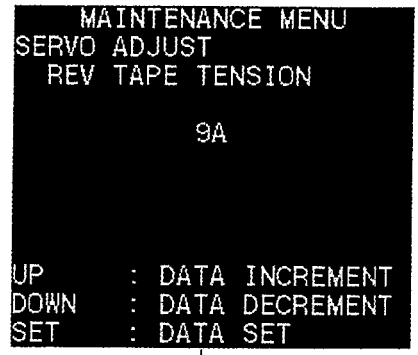
(11) Press the (←) key to display the next screen.



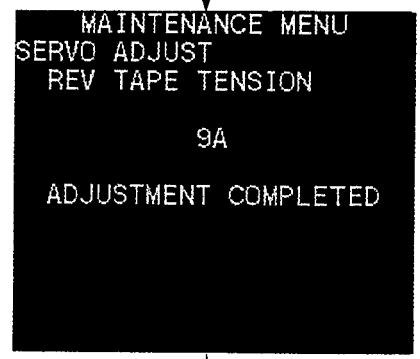
(12) Press the (↑) (↓) keys to select REV TAPE TENSION from the menu.
(13) Press the (→) key to display the next screen.



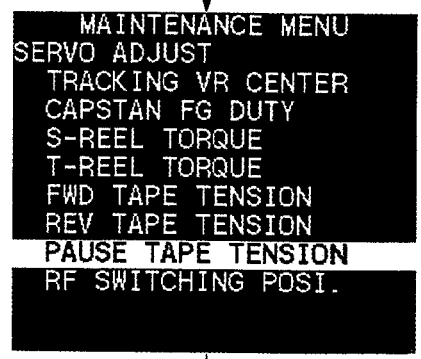
(14) Enter the SEACH REV mode.
(15) Press the (↑) (↓) keys so that the value on the tentelometer meet the required specification 2.
(16) Press the SET key,and confirm to display the next screen.



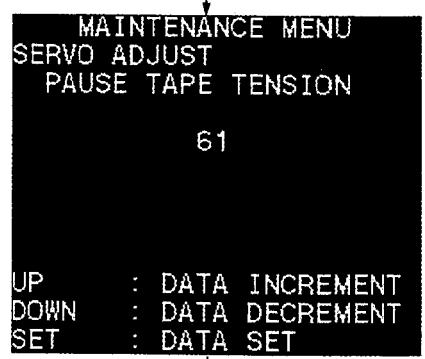
(17) Press the (←) key to display the next screen.



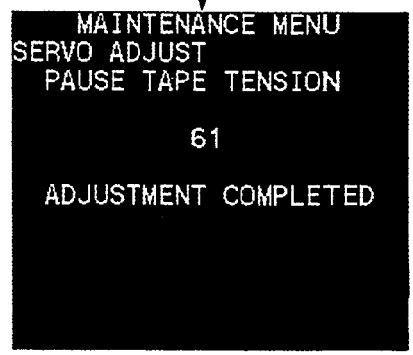
(18) Press the (↑) (↓) keys to select PAUSE TAPE TENSION from the menu.
(19) Press the (→) key to display the next screen.



(20) Enter the PAUSE mode.
(21) Press the (↑) (↓) keys so that the value on the tentelometer meet the required specification 3.
(22) Press the SET key,and confirm to display the next screen.



(23) Confirm that each of the tape tension meet the required specification 1 and 3.
During PLAY mode, tape tension required specification 1, and PAUSE mode, tape tension required specification 3.
(24) Confirm that each of the tape tension meet the required specification 2 and 3.
During SEARCH REV mode, tape tension required specification 2, and PAUSE mode, tape tension required specification 3.
(25) Press the MENU key to finish the menu.
(26) Remove the tentelometer and bamboo skewer, then press the EJECT key and remove the cassette tape.
(27) Set all switches of DIP switch S101/SS-58 board (C-1) to off.



SECTION 6
TAPE PATH ALIGNMENT

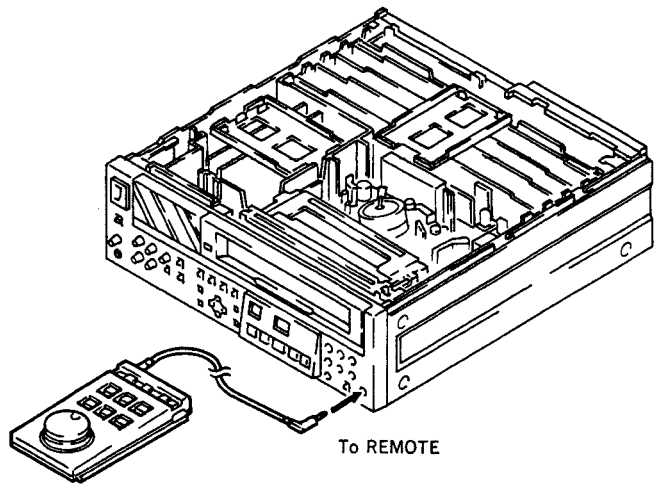
The tape path system has been adjusted before leaving the factory. If a part in the transport is replaced, therefore, the new part should be adjusted carefully to ensure that the tape transport is stable.
This section covers the entire adjustment procedure from coarse adjustment to fine adjustment.
Before commencing adjustment, remove the top panel of the VTR.

[Adjustment preparations]

1) Remote controller

The VTR can be also operated by the remote controller (SVRM-100, RM-V200, RM-V100, etc.)

Connecting the remote controller

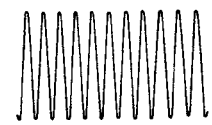
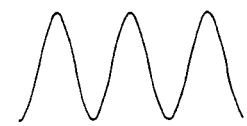


SVRM-100
(RM-V100 or RM-V200, SVRM-100)

2) Equipment and tool

- Oscilloscope
- Tentelometer, T2-H7-UMC
- Guide adjustment screwdriver (J-6082-044-A or J-6080-811-A)
- Small adjustment mirror (J-6080-840-A)
- X value adjustment tool (J-6380-710-A)
- X value adjustment tool connecting cable (Refer to sub-section 6-9) (Must be provided by the service side.)
- Converting Plug (Refer to sub-section 6-9) (Must be provided by the service side.)
- RP extension tool (J-6381-370-A)
- S-VHS cassette tape, T-160 and T-120
- Alignment tape, KRV-5821NSA (8-192-602-43)
- Alignment tape, KRV-51HN (8-192-605-21)
- Alignment tape, KRV-23NS (8-192-602-12)

Signals recorded on the alignment tape

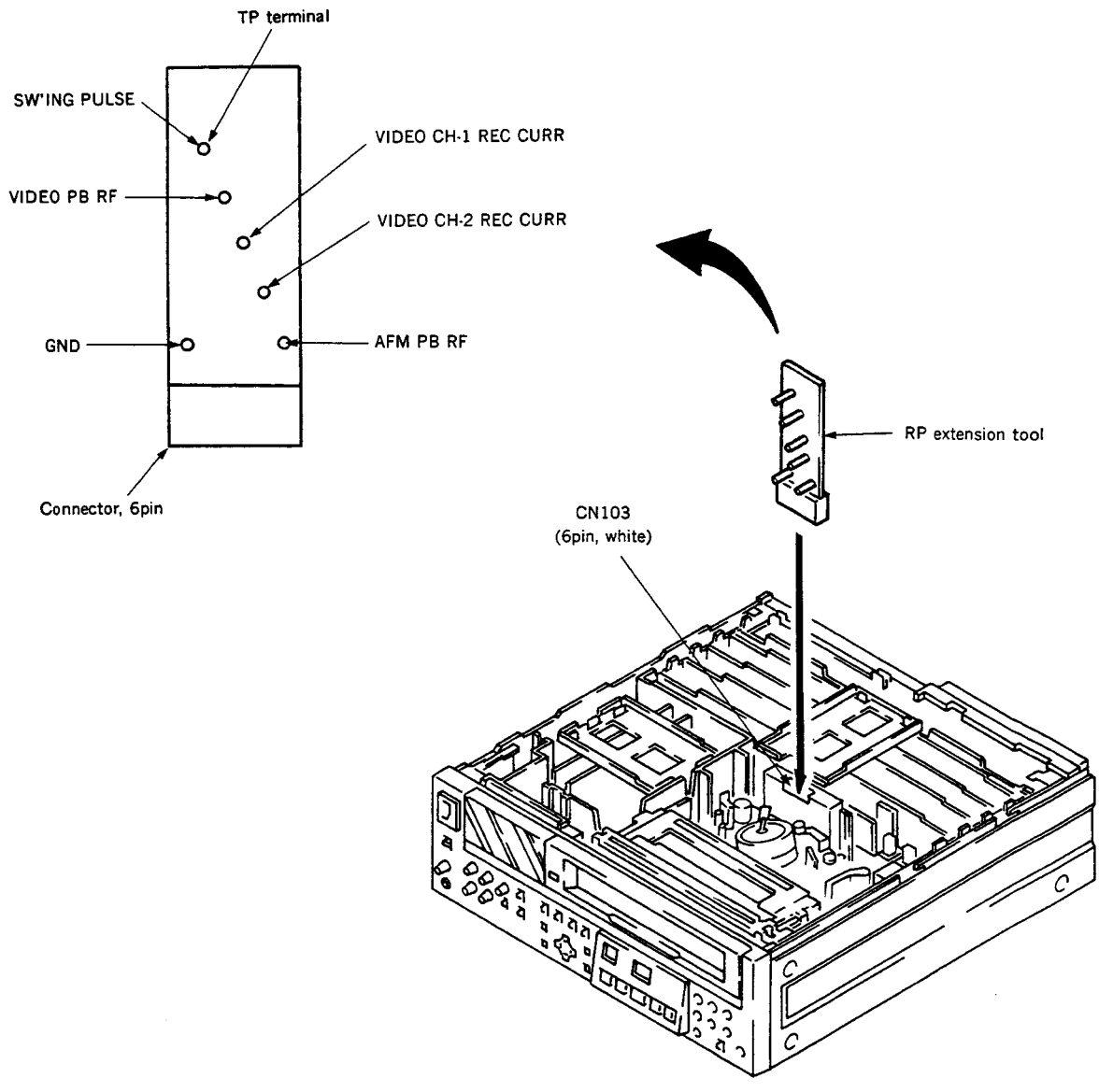
Name (Part No.)	Recording Mode	Signals recorded on the tape	
		Video area	Audio area
KRV-23NS (8-192-602-12)	SP	• 3 MHz 120 min	• Hi-Fi carrier 120 min 1.3 MHz, 1.7MHz } MIX
KRV-5821NSA (8-192-602-43)	SP	• 1MHz (CH-1 only) • 1V blanking every 60V } 120min.	• 7kHz 120min. • 1kHz 120min. } MIX 7kHz  1kHz 
KRV-51HN (S-VHS) (8-192-605-21)	SP	• Color bars 5min.	• No signal
	EP	• Color bars 5min.	

RP extension tool

This extension tool is used to take off the signal output from the check connector CN103 on the RP-74 board so as to enable it to be connected easily to a probe.
It is intended to be inserted into connector CN103.

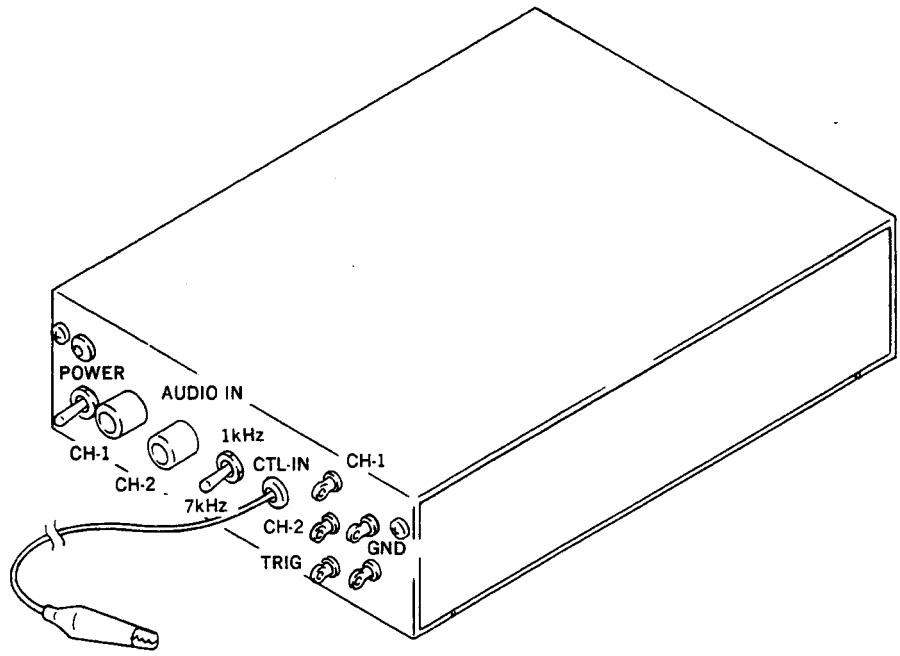
CN103 output signal

Pin No.	Output Signal
1	AFM PB RF
2	VIDEO CH-2 REC CURRENT
3	VIDEO CH-1 REC CURRENT
4	VIDEO PB RF OUT
5	RF SWITCHING PULSE
6	GND



X value adjustment tool

This tool is used when adjusting the height of the audio head, the azimuth, zenith, head-to-tape contact and the X value (position of audio head).
Power is supplied from two internal dry batteries (9V).
When replacing the dry batteries, remove the four screws at the bottom, and open the bottom plate of the tool.
Note :
The batteries will run down quickly if the POWER switch of the tool is left switched ON.

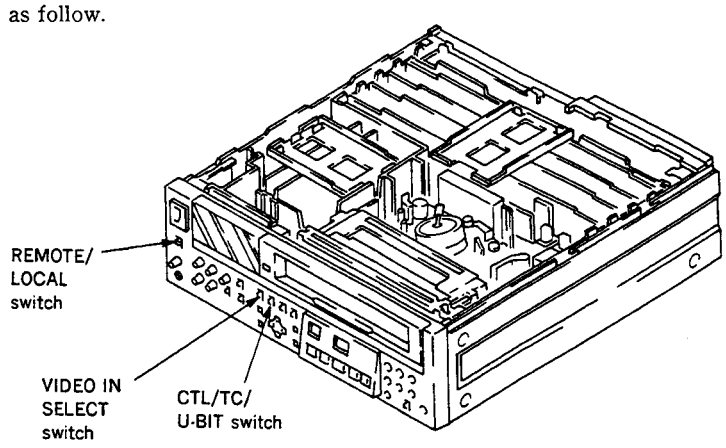


X value adjustment tool

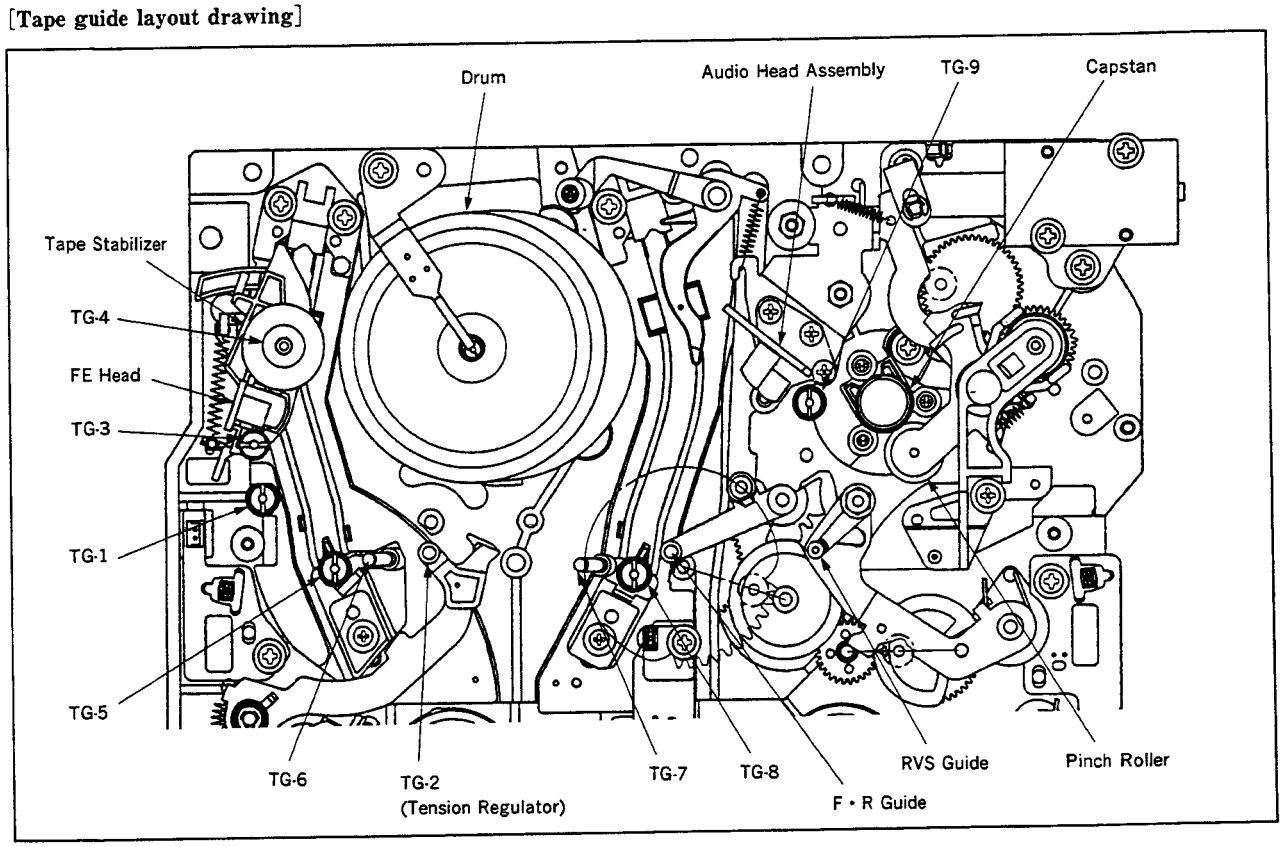
3) Switch or Menu setting

Set the switches of the front panel and the sub panel as follow.

Switches or Menu		Settings
Front Panel	VIDEO IN SELECT switch (SVO-5800 only)	S VIDEO or LINE
	REMOTE/LOCAL switch	LOCAL
	CTL/TC/U-BIT switch	CTL
Set-up Menu	LINE OUT item of AUDIO CONTROL menu	NORMAL
	NORMAL CH-2 item of AUDIO CONTROL menu	AUDIO

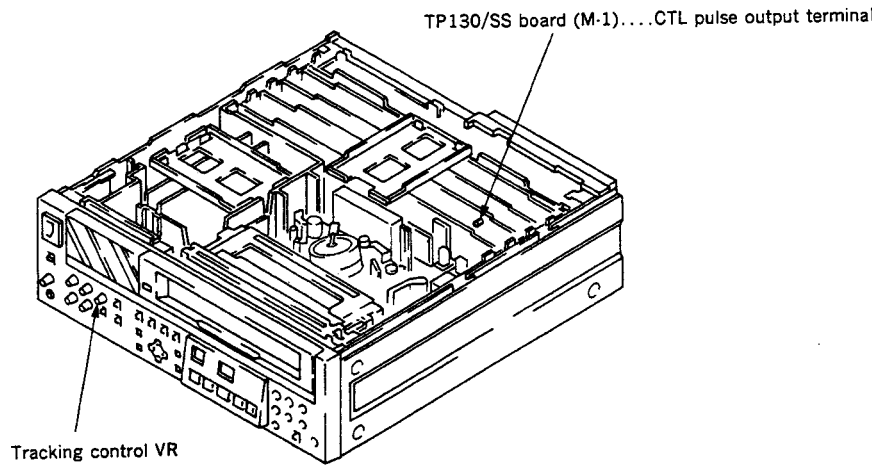


[Tape guide layout drawing]

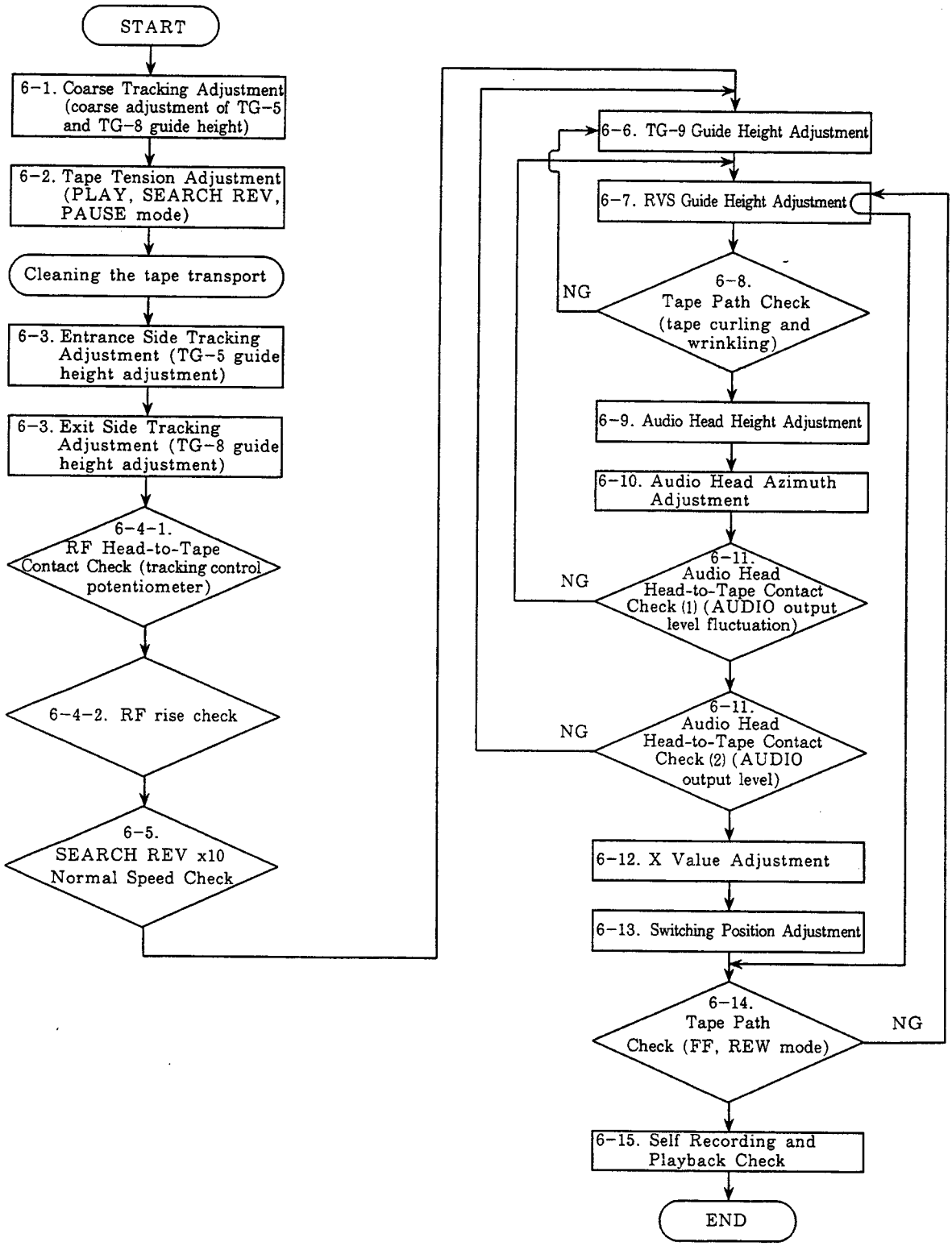


[Position of potentiometers and TP terminals]

The positions of the adjustment potentiometers and TP terminals are shown in the figure below.
(The figure below shows the VTR with the top panel removed.)



[Adjustment Flow Chart]


START
6-1. Coarse Tracking Adjustment (coarse adjustment of TG-5 and TG-8 guide height)
6-2. Tape Tension Adjustment (PLAY, SEARCH REV, PAUSE mode)
Cleaning the tape transport
6-3. Entrance Side Tracking Adjustment (TG-5 guide height adjustment)
6-3. Exit Side Tracking Adjustment (TG-8 guide height adjustment)
6-4-1. RF Head-to-Tape Contact Check (tracking control potentiometer)
6-4-2. RF rise check
6-5. SEARCH REV x10 Normal Speed Check
6-6. TG-9 Guide Height Adjustment
6-7. RVS Guide Height Adjustment
NG
6-8. Tape Path Check (tape curling and wrinkling)
6-9. Audio Head Height Adjustment
6-10. Audio Head Azimuth Adjustment
NG
6-11. Audio Head Head-to-Tape Contact Check (1) (AUDIO output level fluctuation)
NG
6-11. Audio Head Head-to-Tape Contact Check (2) (AUDIO output level)
6-12. X Value Adjustment
6-13. Switching Position Adjustment
6-14. Tape Path Check (FF, REW mode)
NG
6-15. Self Recording and Playback Check
END

6-1. COARSE TRACKING ADJUSTMENT

Tools :
Oscilloscope
RP extension tool (J-6381-370-A)
Alignment tape, KRV-5821NSA
Guide adjustment screwdriver (J-6082-044-A or J-6080-811-A)

Adjustment Procedure :

(1) Connect the oscilloscope as follows.
CH-1 : VIDEO PB RF terminal/RP extension tool
TRIG : SW'ING PULSE terminal/RP extension tool
GND : GND terminal/RP extension tool
(2) Play back the alignment tape.
(3) Turn the tracking control potentiometer on the front panel until the center part of the RF waveform is maximum. (Fig. 2)
(4) Turn the upper flange of the TG-5 guide until the RF waveform at the entrance side is virtually flat. (Fig. 3)
(5) Turn the upper flange of the TG-8 guide until the RF waveform at the exit side is virtually flat. (Fig. 4)
(6) Turn the tracking control potentiometer until the center part of the RF waveform is maximum.
(7) Press the EJECT button, and remove the alignment tape.

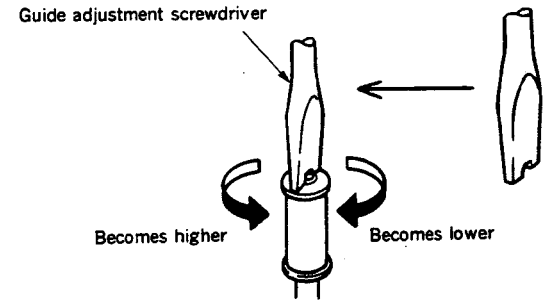


Fig. 1 Tape Guide Height Adjustment Method.

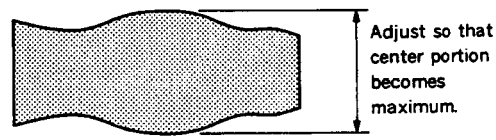


Fig. 2

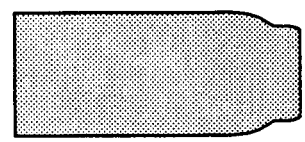


Fig. 3

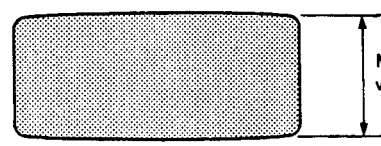


Fig. 4

6-2. TAPE TENSION ADJUSTMENT

Tools :
Tentelometer, T2-H7-UMC
S-VHS cassette tape, T-120

Adjustment Procedure :

(1) To prevent the tape from touching the tentelometer, rotate the tape stabilizer in the direction of the arrow until it strikes the chassis (left), then insert the bamboo skewer, or the like, at point "a" shown in the figure, and fix it in place. (Fig.1)
(2) Insert a cassette tape (T-120) in the VTR, then put the VTR into the PLAY mode.
(3) Install the tentelometer between the TG-3 guide and the TG-5 guide. (Fig1)

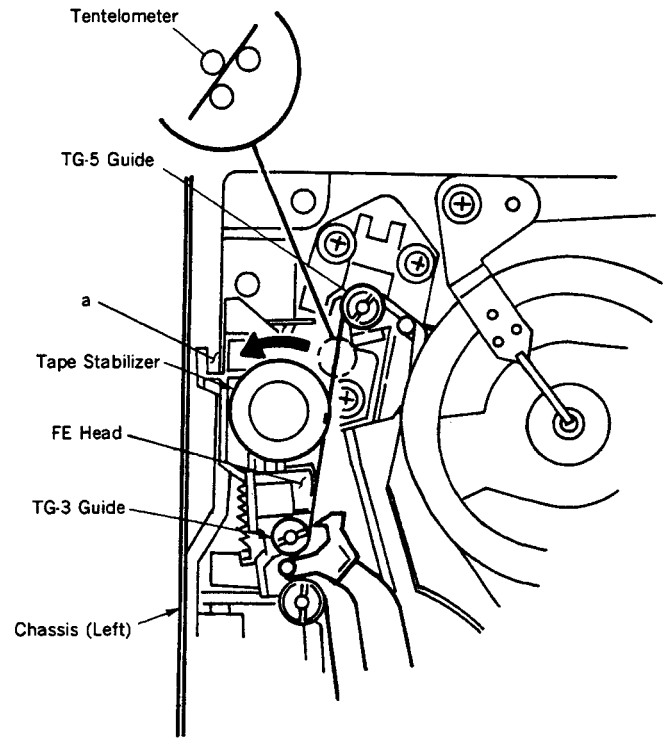


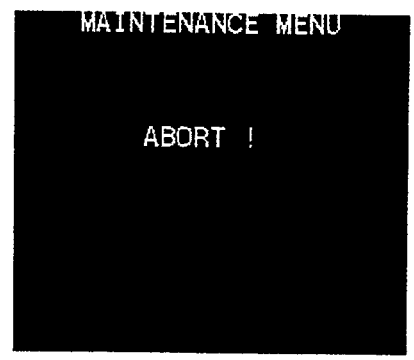
Fig. 1

Spec. 1 : Tape tension in the PLAY mode
$[245 \pm 25] \times 10^{-3}$ N (25 ± 2.5 g)

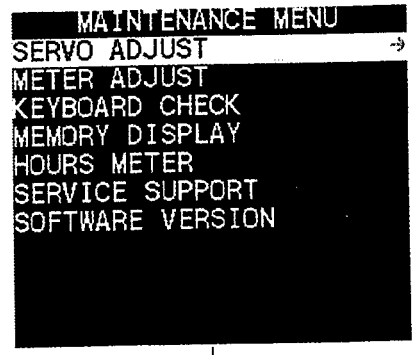
Spec. 2 : Tape tension in the SEARCH REV mode
$[392 \pm 25] \times 10^{-3}$ N (40 ± 2.5 g)

Spec. 3 : Tape tension in the PAUSE mode
$[216 \pm 20] \times 10^{-3}$ N (22 ± 2 g)

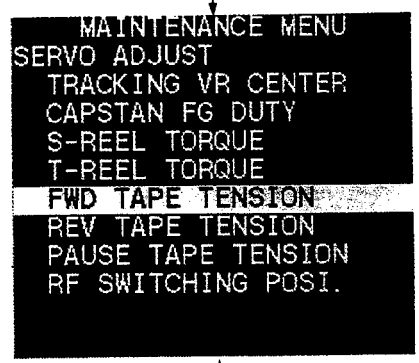
Note : If the MENU key is pressed without pressing the SET (YES) key in the following adjustments, "ABORT!" appears on the monitor display without saving the new adjustment data. The data before starting the adjustment is saved and the maintenance menu terminals.



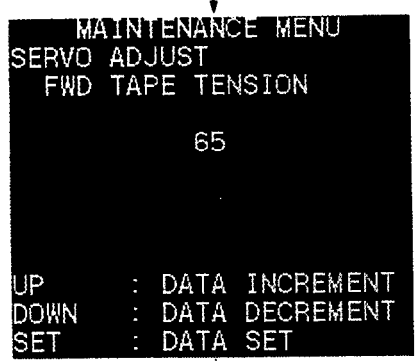
(4) Hold down the (←) key and press the MENU key to display the maintenance menu on the monitor screen.
(5) Press the (↑) (↓) keys to select SERVO ADJUST from the menu.
(6) Press the (→) key to display the next screen.



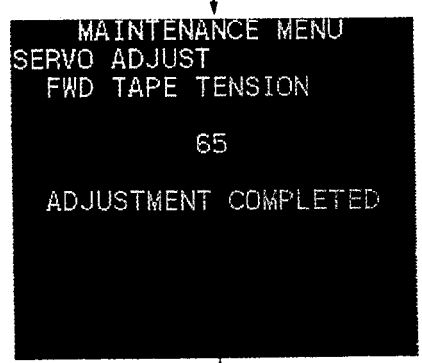
(7) Press the (↑) (↓) keys to select FWD TAPE TENSION from the menu.
(8) Press the (→) key to display next screen.



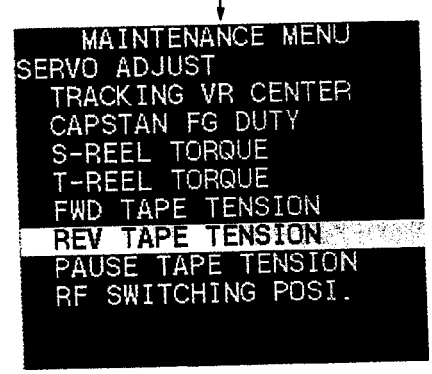
(9) Press the (↑) (↓) keys so that the value on the tentelometer meet the required specification 1.
(10) Press the SET key, and confirm to display the next screen.



(11) Press the (←) key to display the next screen.

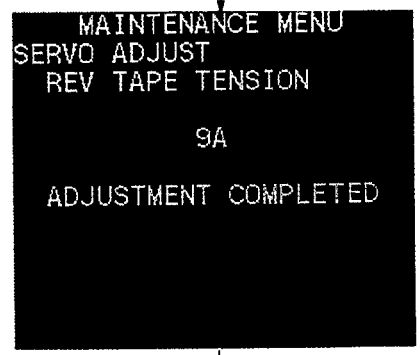


(12) Press the (↑) (↓) keys to select REV TAPE TENSION from the menu.
(13) Press the (→) key to display the next screen.

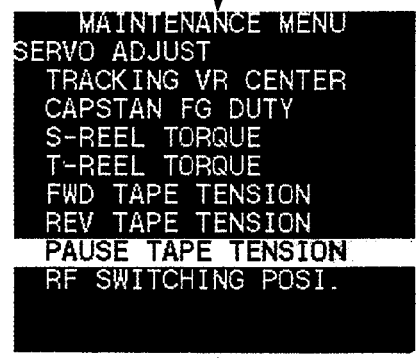


(14) Enter the SEACH REV mode.
(15) Press the (↑) (↓) keys so that the value on the tentelometer meet the required specification 2.
(16) Press the SET key, and confirm to display the next screen.

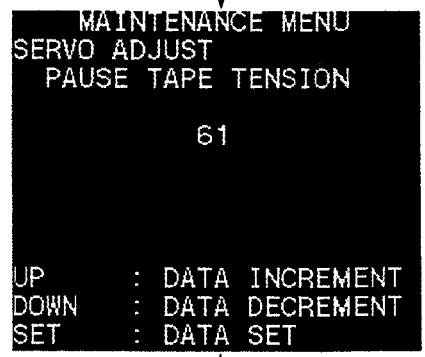
(17) Press the (←) key to display the next screen.



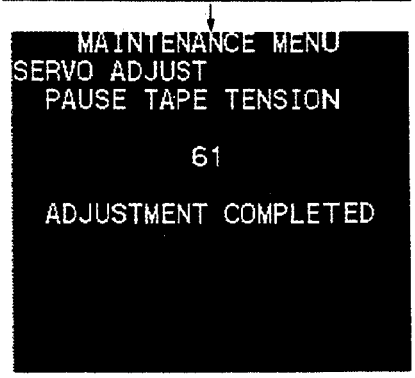
(18) Press the (↑) (↓) keys to select PAUSE TAPE TENSION from the menu.
(19) Press the (→) key to display the next screen.



(20) Enter the PAUSE mode.
(21) Press the (↑) (↓) keys so that the value on the tentelometer meet the required specification 3.
(22) Press the SET key, and confirm to display the next screen.



(23) Confirm that each of the tape tension meet the required specification 1 and 3.
During PLAY mode, tape tension required specification 1, and PAUSE mode, tape tension required specification 3.
(24) Confirm that each of the tape tension meet the required specification 2 and 3.
During SEARCH REV mode, tape tension required specification 2, and PAUSE mode, tape tension required specification 3.
(25) Press the MENU key to finish the menu.
(26) Remove the tentelometer and bamboo skewer, then press the EJECT key and remove the cassette tape.
(27) Set all switches of DIP switch S101/SS-58 board (C-1) to OFF.



6-3. TRACKING ADJUSTMENT

Tools :
Oscilloscope
RP extension tool (J-6381-370-A)
Guide adjustment screwdriver (J-6082-044-A or J-6080-811-A)
Alignment tape, KRV-5821NSA

Cleaning prior to adjustment :
Clean the following parts with a cleaning piece moistened with cleaning fluid.

- TG-1 to TG-9, RVS and F • R tape guide
- Audio head, FE head, capstan, pinch roller
- Rotary head, tape run face of upper and lower drums

[Note : Method of cleaning the rotary head]
Press the cleaning piece gently against the rotary head, then rotate the upper drum slowly in the counterclockwise direction manually to clean the head.

Adjustment Procedure :

(1) Connect the oscilloscope as follows.
CH-1 : VIDEO PB RF terminal/RP extension tool
TRIG : SW'ING PULSE terminal/RP extension tool
GND : GND terminal/RP extension tool

(2) Play back the alignment tape.

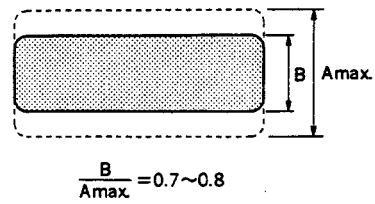
Entrance side adjustment :

(3) Turn the tracking control potentiometer on the front panel until the RF waveform is 70 to 80% of maximum. (Fig. 1)

(4) Turn the upper flange of the TG-5 guide clockwise until the RF waveform at the left hand side is as shown in Fig. 2.

(5) Turn the upper flange on the TG-5 guide in the counterclockwise direction until the RF waveform at the left hand side is flat. (Fig. 3)
Note :
- Complete the height adjustment of TG-5 with the guide turned counterclockwise.

(6) Turn the tracking control potentiometer on the front panel counterclockwise until the RF waveform is 70 to 80% of maximum, then confirm that the RF waveform at the left hand side is virtually flat. (Fig. 4)



$\frac{B}{Amax.} = 0.7 \sim 0.8$

Fig. 1

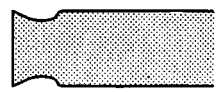


Fig. 2

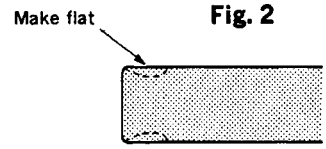
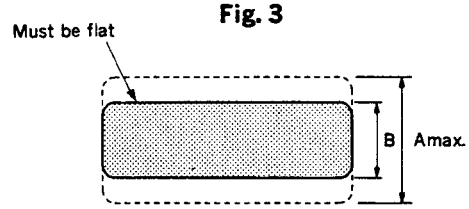


Fig. 3



Spec. :
RF waveform at entrance side must be virtually flat when $\frac{B}{Amax.} = 0.7$ to 0.8.

Fig. 4

Exit side adjustment :

(7) Turn the tracking control potentiometer on the front panel until the RF waveform is 70 to 80% of maximum. (Fig. 1)

(8) Turn the upper flange of the TG-8 guide clockwise until the RF waveform on the right hand side is as shown in Fig. 5.

(9) Turn the upper flange of the TG-8 guide counterclockwise until the RF waveform on the right hand side is Fig. 6.
Note :
- Complete the height adjustment of TG-8 with the guide turned counterclockwise.

(10) Confirm that the RF waveform on the right hand side is Fig. 6 when the mode is switched from STOP to PLAY.

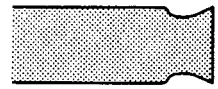
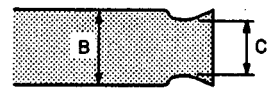


Fig. 5



$\frac{C}{B}$=0.85~0.95

Fig. 6

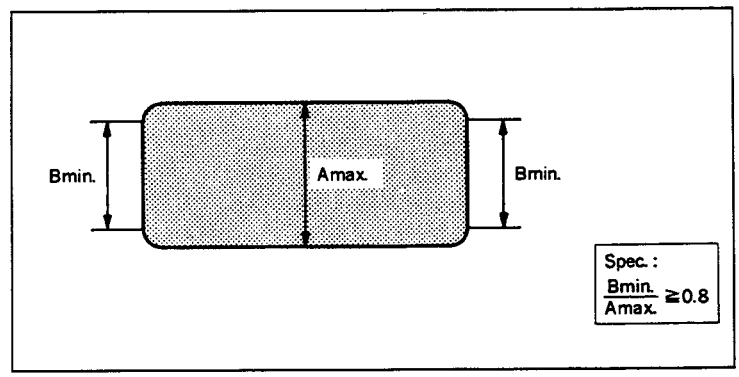
6-4. CHECKING AFTER TRACKING ADJUSTMENT

Tools:
Oscilloscope
RP extension tool (J-6381-370-A)
Alignment tape, KRV-5821NSA

- Connect the oscilloscope as follows.
  CH-1: VIDEO PB RF terminal/RP extension tool
  TRIG: SW'ING PULSE terminal/RP extension tool
  GND: GND terminal/RP extension tool

6-4-1. RF head-to-tape contact check

(1) Play back the alignment tape.
(2) Turn the tracking control potentiometer on the front panel until the center of the RF waveform is maximum.
(3) Confirm that the RF waveform meet the specification.



6-4-2. RF rise check

(1) Play back the alignment tape.
(2) Turn the tracking control potentiometer on the front panel until the center of the RF waveform becomes maximum.
(3) Put the VTR in each of the following modes in turn, and confirm that the rise time of the RF waveform meet the specification. (Fig. 1)
  ① Search REV → PLAY
  ② Search FWD → PLAY
  ③ STOP → PLAY
(4) Enter the Search REV mode, and confirm that there is no missing of the RF waveform at the entrance side. (Fig. 2)

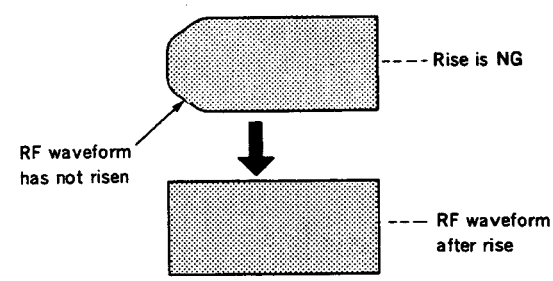


Fig. 1

Spec.:	RF rise time
① Search REV → PLAY	Within 3sec.
② Search FWD → PLAY	Within 3sec.
③ STOP → PLAY	Within 3sec.

• The rise time is the time from when the RF waveform appears on the oscilloscope.

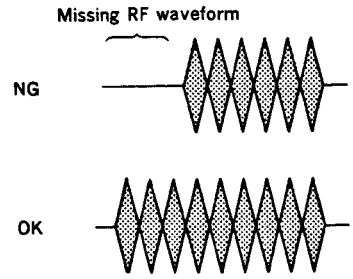


Fig. 2

6-5. SEARCH REV x10 NORMAL SPEED CHECK

Tools :
Oscilloscope
Alignment tape, KRV-51HN
RP extension tool (J-6381-370-A)
Remote controller: SVRM-100 or RM-V100, RM-V200

Checking Procedure :
(1) Connect the oscilloscope as follows.
CH-1 : VIDEO CH-2 REC CURR terminal/RP extension tool
TRIG : SW'ING PULSE terminal/RP extension tool
GND : GND terminal/RP extension tool
(2) Insert the alignment tape in the VTR.
(3) Using the remote controller, enter the SEARCH REV mode (x10 times normal speed), and play back the color bars that were recorded in the SP mode.
(4) Confirm that an RF waveform appears at SP1, SP2, EP1 and EP2. (Fig. 1) Also, confirm that an RF waveform appears at the entrance side. (Fig. 2) (Fig. 3)

If there is not appear the RF waveform.
Check the following points.
①Does the tape curl or become wrikled between the TG-5 guide, drum and the TG-8 guide ?
If curling or wrinkling occurs → re-adjust the height of the TG-5 and TG-8 guides.

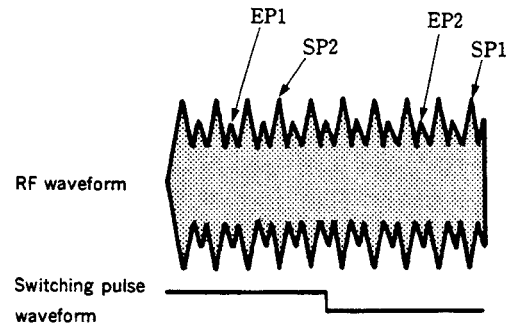


Fig. 1

Example-1 of NG

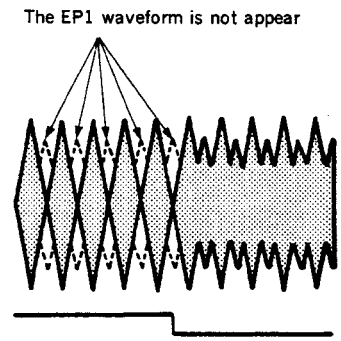


Fig. 2

Example-2 of NG

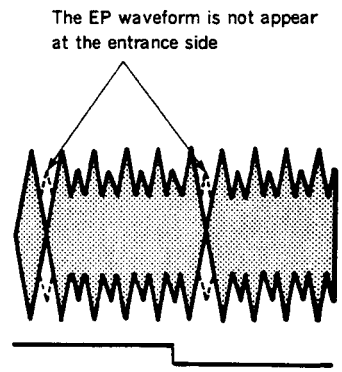
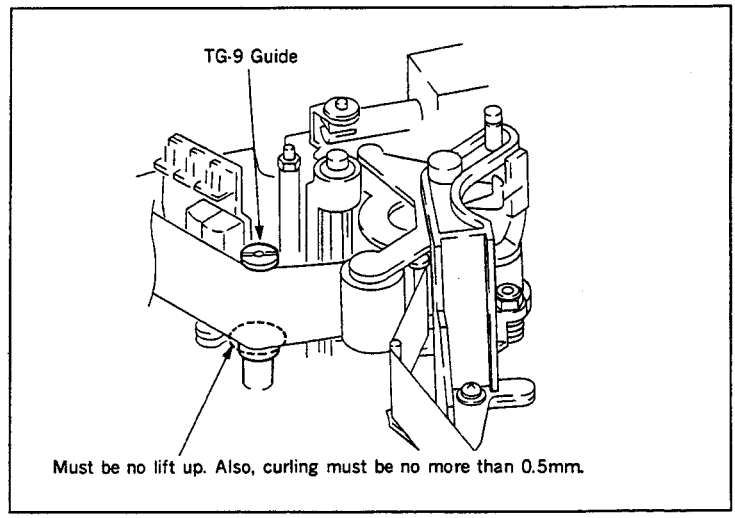


Fig. 3

6-6. TG-9 GUIDE HEIGHT ADJUSTMENT

Tool :
S-VHS cassette tape, T-160
Guide adjustment screwdriver (J-6082-044-A or J-6080-811-A)

Adjustment Procedure :
(1) Insert a cassette tape (T-160) in the VTR, then put the VTR in the PLAY mode.
(2) Turn the upper flange of the TG-9 guide, and pass the tape along the lower flange.

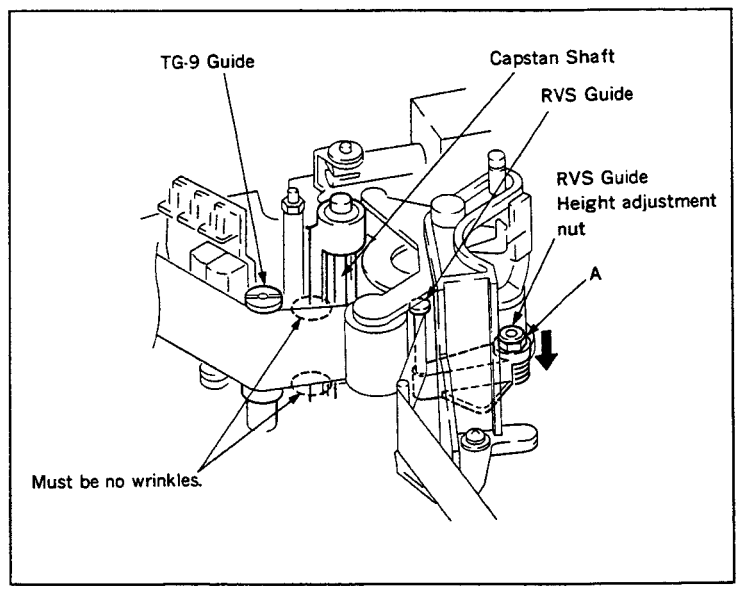


6-7. RVS GUIDE HEIGHT ADJUSTMENT

Tools :
S-VHS cassette tape, T-160
Box screwdriver, 5.5mm width

Adjustment Procedure :
(1) Enter the Search REV mode using the first 10 minutes or less of the tape.
(2) Turn the RVS guide height adjustment nut until wrinkling of the tape between the TG-9 guide and the capstan shaft that occurs when the VTR is switched from the search REV mode to the search FWD mode, or vice-versa, disappears in less than 3 seconds.

Direction of adjustment of RVS guide height adjustment nut
If the wrinkling of the tape decreases when part A indicated in the figure (bottom of adjustment nut) is pressed in the direction of the arrow, turn the RVS guide height adjustment nut clockwise. If the wrinkling increases, turn the nut counterclockwise.



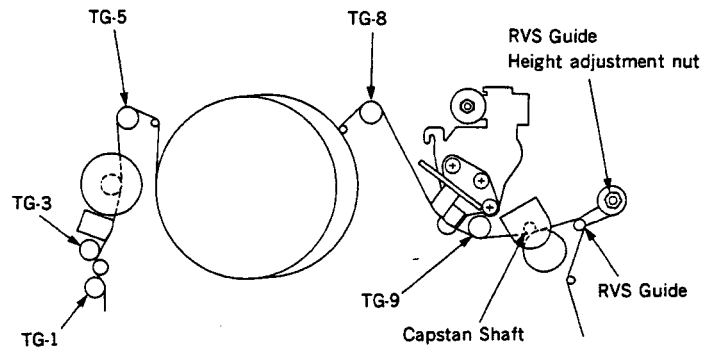
6-8. TAPE PATH CHECK (check to be performed subsequent to adjustments of sections 6-1 to 6-7)

Tool :
S-VHS cassette tape, T-160

Checking Procedure :
(1) Insert a cassette tape (T-160) in the VTR.
(2) Confirm that the curling of the tape at the TG-1, TG-3, TG-5, TG-8 and TG-9 guides in both the Search FWD and Search REV modes meet the specification.

If the specification is not satisfied :

(3) Re-adjust the TG-9 and RVS guide height referring to sub-sections 6-6 and 6-7.
(4) Check step (2).



Spec. :
TG-1, TG-3, TG-5, TG-8, TG-9 Guides .....Tape curling must be within 1mm.

6-9. AUDIO HEAD HEIGHT ADJUSTMENT

Tools :

Oscilloscope
X value adjustment tool (J-6380-710-A)
Alignment tape, KRV-5821NSA
Box screwdriver, 5.5mm width
Connecting cables (two) (to be provided by the service side)....Fig. 1
Converting plug (four) (to be provided by the service side)....Fig. 1

Connecting the tool :

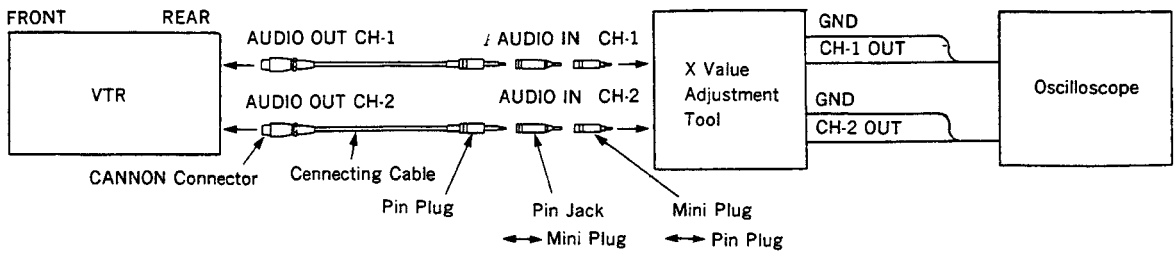


Fig. 1

Adjustment Procedure :

(1) Set the switch on the X value adjustment tool to the 1 kHz side.
(2) Turn the POWER switch of the X value adjustment tool ON.
(3) Play back the alignment tape.
(4) Turn the audio head height adjustment nut until the CH-1 output level is maximum.
Adjust the CH-1 upper edge to center line with oscilloscope adjustment volume. (Fig. 2, Fig. 3)
(5) Turn the adjustment nut until the CH-2 output level is maximum.
Adjust the CH-2 lower edge to center line. (Fig. 3)
(6) Adjust finely the audio head height adjustment nut so that the CH-1 and CH-2 waveforms are maximum and meet the specification. (Fig. 4)
(7) Put the unit into the PLAY mode from REV mode. When the rising of output level is wrong, adjust finely the height of RVS guide.

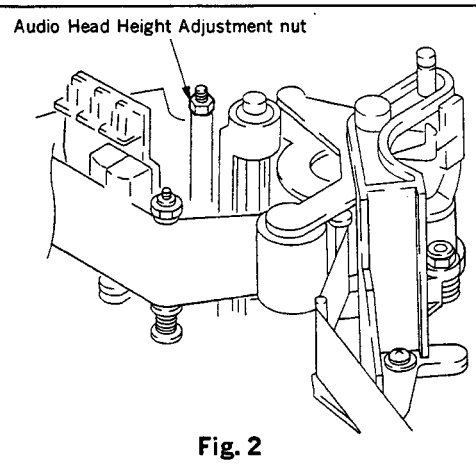


Fig. 2

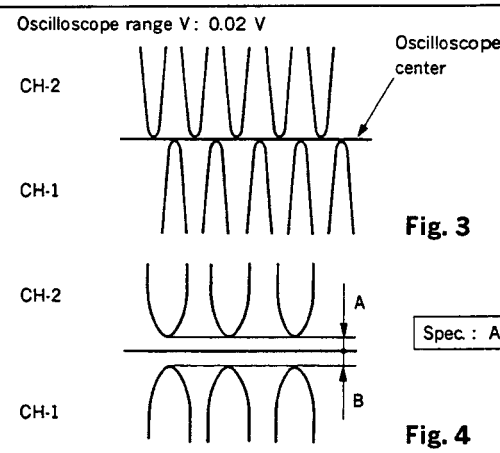


Fig. 3

Fig. 4

6-10. AUDIO HEAD AZIMUTH ADJUSTMENT

Tools :
Oscilloscope
X value adjustment tool (J-6380-710-A)
Alignment tape, KRV-5821NSA
Connecting cables (two) (Refer to sub-section 6-9.)
Converting plug (four) (Refer to sub-section 6-9.)

Connecting the tool : Same as sub-section 6-9

Adjustment Procedure :
(1) Set the switch on the X value adjustment tool to the 7kHz side.
(2) Play back the alignment tape (KRV-5821NSA).

Output level adjustment
(3) Turn the azimuth adjustment screw until the resurge waveform on the oscilloscope meet the specification 1. (Fig. 1, Fig. 2)

Azimuth adjustment
(4) Turn the azimuth adjustment screw until the resurge waveform on the oscilloscope meet the specification 2. (Fig. 2)

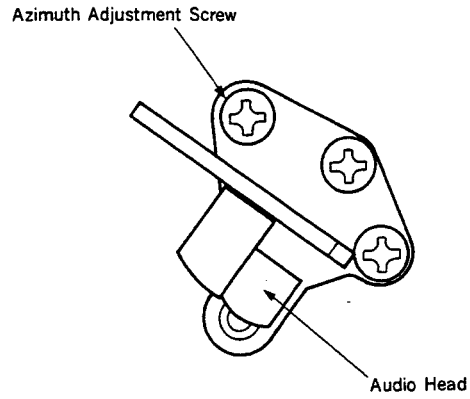


Fig. 1

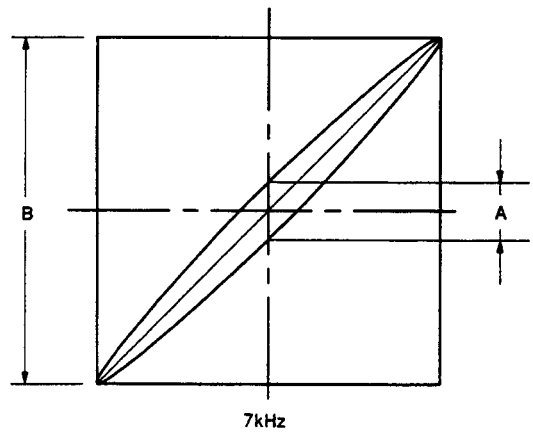


Fig. 2

Spec. 1 :
B must be the maximum level.

Spec. 2 :
A must be no more than 1cm when level B is 6cm.

6-11. AUDIO HEAD HEAD-TO-TAPE CONTACT CHECK

Tools :
Oscilloscope
X value adjustment tool (J-6380-710-A)
Alignment tape KRV-5821NSA
Connecting cables (two) (Refer to sub-section 6-9.)
Converting plug (four) (Refer to sub-section 6-9.)

Connecting the tool : Same as Sec. 6-9

Checking Procedure :
(1) Set the switch on the X value adjustment tool to the 7KHz side.
(2) Play back the alignment tape (KRV-5821NSA).

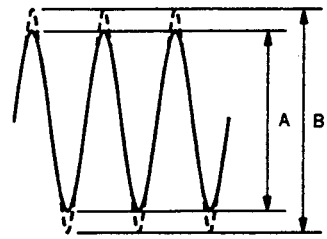
Level fluctuation check
(3) Confirm that the level fluctuation of both CH-1 and CH-2 meet the specification. (Fig. 1)

If the specification is not satisfied :
(4) Turn the TG-9 guide counterclockwise until the specification is satisfied. (Fig. 2) (Tape curling must be no more than 0.5mm.)
(5) Return to Sec. 6-7 and repeat adjustment up to Sec. 6-10.
(6) Check step (3).

Output level check
(7) Press the top of the tape (AUDIO track part) as indicated by the arrow gently with the tip of the finger, and confirm that the increase in level conforms to the specification for both CH-1 and CH-2. (Fig. 2 and Fig. 3)

If the specification is not satisfied :
(8) Turn the zenith adjustment screw of the audio head 90° clockwise.
(9) Return to Sec. 6-6 and repeat adjustment up to Sec. 6-10.
(10) Check steps (3) and (7).

Level Fluctuation



Spec. :
A≧0.9B

Fig. 1

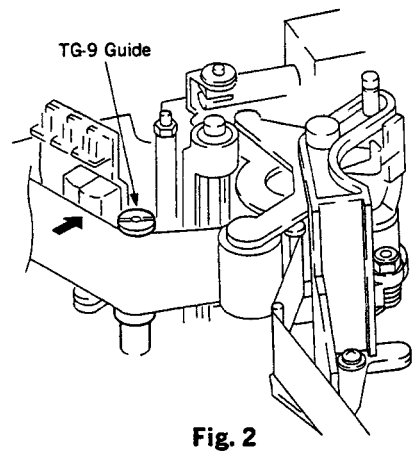
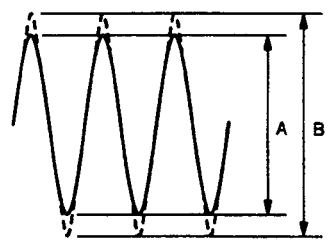


Fig. 2

Output Level



Spec. :
B≦1.1A

A : Initial level
B : Level when the tape is pressed with the finger.

Fig. 3

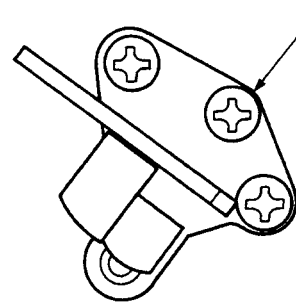
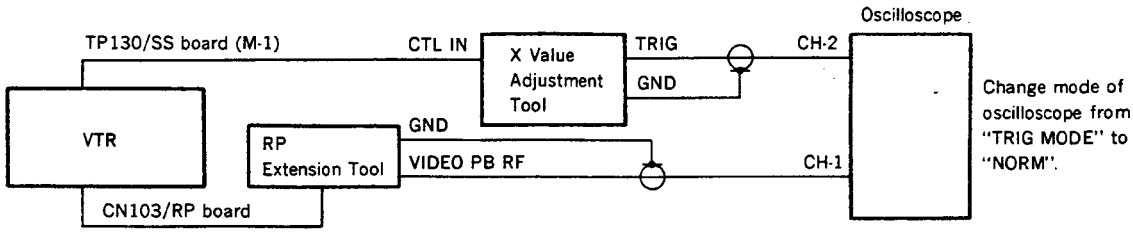


Fig. 4

6-12. X VALUE ADJUSTMENT (AUDIO HEAD POSITION ADJUSTMENT)

Tools:
Oscilloscope
X value adjustment tool (J-6380-710-A)
RP extension tool (J-6381-370-A)
Alignment tape, KRV-5821NSA
Box screwdriver, 5.5mm width
Connecting cable
Converting plug

Connecting the tool:



Adjustment Procedure:

(1) Play back the alignment tape.
(2) Turn the tracking control potentiometer on the front panel to the 「FIXED」 position.
(3) Turn the AC adjustment screw until the positions of the CTL waveform and RF waveform meet the specification 1. (Fig. 1 and Fig. 2)
(4) Change the connection to the oscilloscope as follows.
TRIG: SW'ING PULSE terminal/RP extension tool
(5) Turn the AC adjustment screw until the center of the RF waveform is the maximum level. Confirm that the RF waveform meet the specification 2. (Fig. 3)
(6) Turn the tracking control potentiometer on the front panel left and right, and confirm that the center of the RF waveform is the maximum level when the potentiometer is at the 「FIXED」 position. (specification 3)

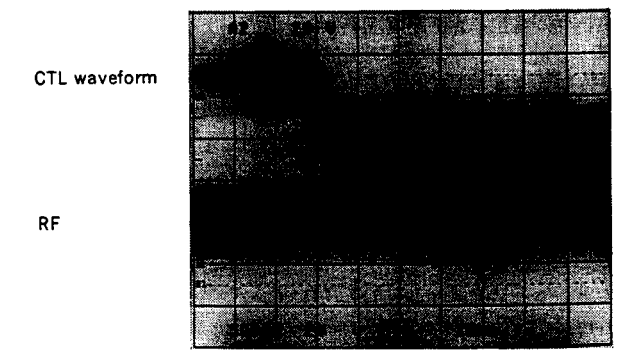


Fig. 2

Spec. 1:
The point where the RF waveform has dropout must coincide with the falling edge of the CTL waveform.
If the RF waveform dropout point has shifted to the right at the CTL datum....Turn the AC adjustment screw counterclockwise.
If the RF waveform dropout point has shifted to the left at the CTL datum....Turn the AC adjustment screw clockwise.

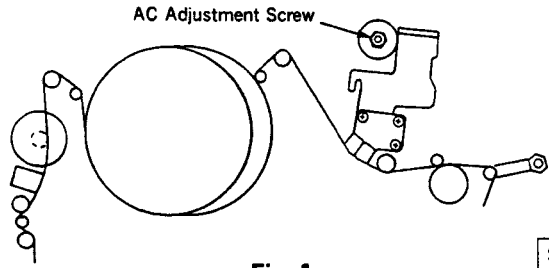
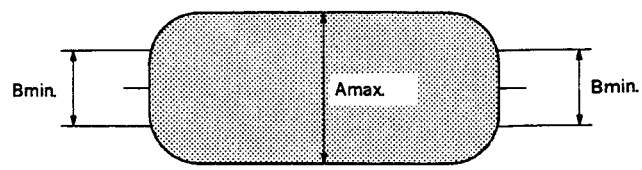


Fig. 1



Spec. 2:
$\frac{Bmin.}{Amax.} \geqq 0.8$

Fig. 3

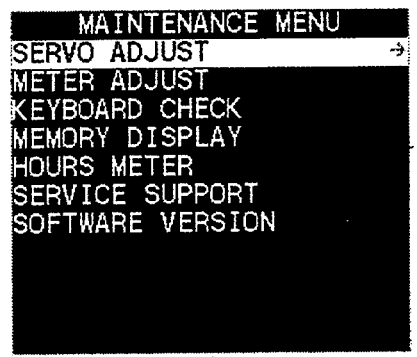
Spec. 3:
The center part of the RF waveform must be the maximum level when the tracking control potentiometer is at the center click position.

6-13. SWITCHING POSITION ADJUSTMENT

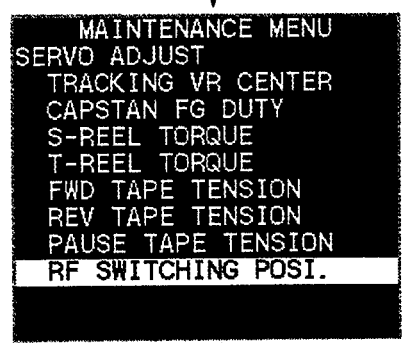
Tools :
Oscilloscope
RP extension tool (J-6381-370-A)
Alignment tape, KRV-23NS

Adjustment Procedure :

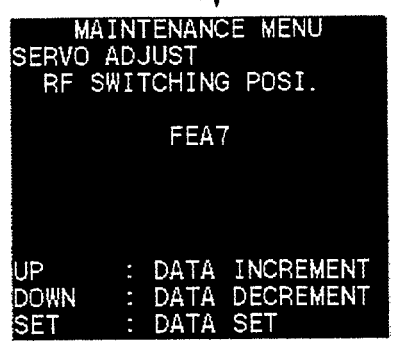
(1) Connect the monitor to the MONITOR VIDEO terminal to display the characters.
(2) Hold down the (←) key and press the MENU key to display the maintenance menu on the monitor screen.
(3) Press the (↑) (↓) keys to select SERVO ADJUST from the menu.
(4) Press the (→) key to display the next screen.



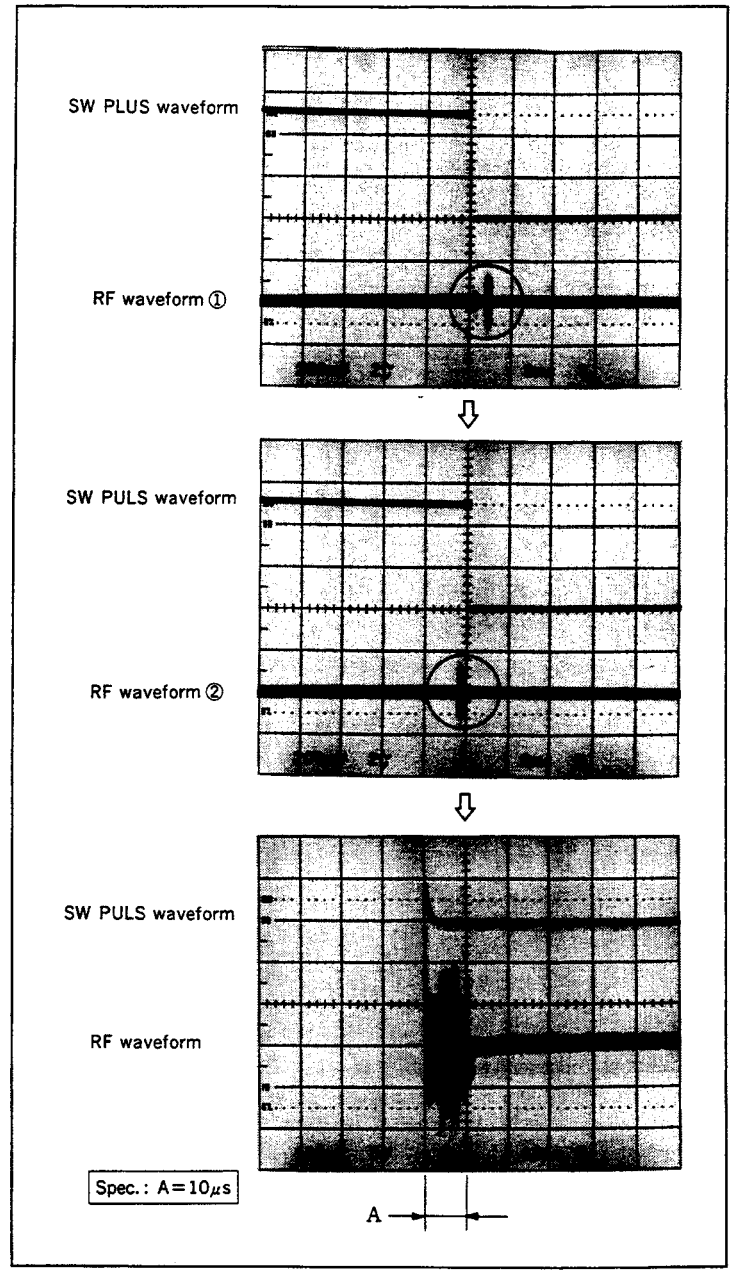
(5) Press the (↑) (↓) keys to select RF SWITCHING POSI from the menu.
(6) Press the (→) key to display the next screen.



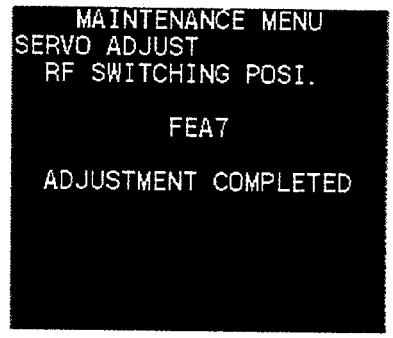
(7) Connect the oscilloscope as follows.
CH-1 : VIDEO PB RF terminal/RP extension tool
GND : GND terminal/RP extension tool
CH-2 : SW'ING PULSE terminal/RP extension tool
TRIG : CH-2
GND : GND terminal/RP extension tool
(8) Play back the color bar part of the alignment tape.
(9) Set the tracking control potentiometer on the front panel to the "FIXED" position.



(10) Press the (↑)(↓) keys so that the RF waveform meet the specification.
(11) After completion of adjustments, press the SET key to display the next screen.



(12) Press the MENU key to finish the menu.



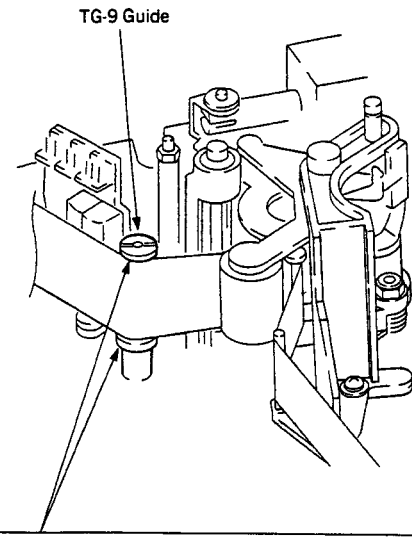
6-14. TAPE PATH CHECK (FF, REW MODE)

Tool :
S-VHS cassette tape, T-160

Checking Procedure :
(1) Insert the cassette tape (T-160) into the VTR.
(2) Press the FF button.
(3) Confirm that the tape travels without riding up on the upper or lower flange of the TG-9 guide for about 15 seconds after the VTR goes into the FF mode.
(4) Press the REW button.
(5) Confirm that the tape travels without riding up on the upper or lower flange of the TG-9 guide for about 15 seconds after the VTR goes into the REW mode.

If specification is not satisfied :

(6) Re-adjust the RVS guide height referring to sub-section 6-7.
(7) Check steps (2) to (5).

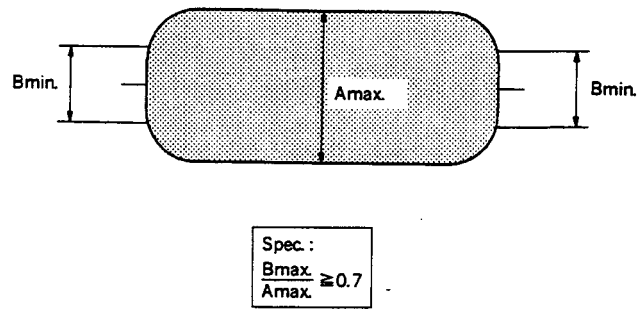


Spec. :
The tape must not ride up on the upper or lower flange.

6-15. SELF RECORDING and PLAYBACK CHECK

Tools:
Oscilloscope
S-VHS cassette tape, T-120
RP extension tool (J-6381-370-A)

Checking Procedure:
(1) Connect the oscilloscope as follows.
CH-1: VIDEO PB RF terminal/RP extension tool
TRIG: SW'ING PULSE terminal/RP extension tool
GND: GND terminal/RP extension tool
(2) Set the tracking control potentiometer on the front panel to the 「FIXED」 position.
(3) Perform recording under no-signal conditions using the center part of the cassette tape (T-120).
(4) Confirm that the playback RF waveform meet the specification. (Fig. 1)
(5) After tape path adjustment has been completed, apply locking compound to the AC adjustment screw, and also the audio head azimuth and zenith adjustment screw. (Fig. 2)



Spec.:
$\frac{Bmax.}{Amax.} \geqq 0.7$

Fig. 1

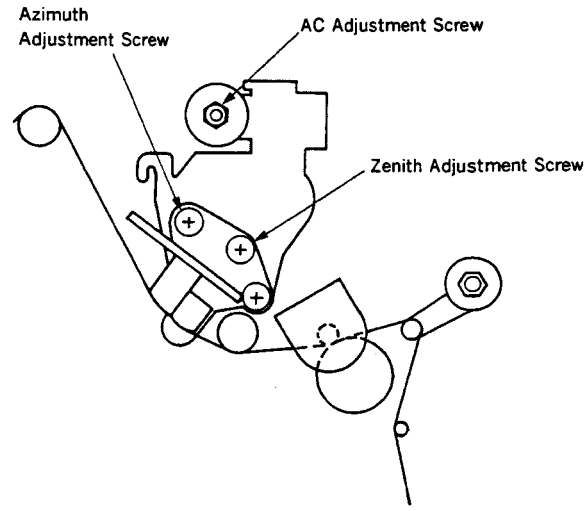


Fig. 2

SECTION 7
ELECTRICAL ALIGNMENT OVERVIEW

7-1. ADJUSTMENT COMPONENT INDEX

As to SVP-5600, perform the adjustments marked with ◎.
As to SVO-5800, perform all adjustments as shown below.

KY-303 board		page
◎S301	YC DELAY	11-23

SS-58 board		page
◎RV301	V SYNC PULSE	8-1

TBC-30 board		page
◎CV100	Y WRITE CLOCK FREQUENCY	11-30
◎CV200	CHROMA WRITE CLOCK FREQUENCY	11-30
◎CV400	910FH CLOCK	11-31
◎CV401	4FSC CLOCK	11-31
◎CV402	C READ CLOCK	11-31
◎RV201	INPUT C ADJ	11-33
◎RV300	TBC Y OUTPUT LEVEL	11-33
◎RV303	BURST MOD BALANCE	11-34
◎RV305	TBC BURST LEVEL	11-34
◎RV306	TBC C OUTPUT LEVEL	11-35
◎RV307	TBC SYNC LEVEL	11-32
◎RV308	SET UP PRESET	11-32
◎RV400	INTERNAL 4FSC CLOCK	11-31
◎RV402	HUE PRESET ADJ	11-35

VA-148 board		page
◎CV841	AFC TC	11-6
◎RV1	BPF ADJ	10-5
◎RV103	CH-1 LAU PB LEVEL ADJ	10-7
RV104	CH-1 LAU REC LEVEL ADJ	10-10
◎RV105	CH-1 LAU PB FRQ RESP ADJ	10-7
RV106	CH-1 S-VHS BIAS CURRENT ADJ	10-9
RV107	CH-1 VHS BIAS CURRENT ADJ	10-8
◎RV203	CH-2 LAU PB LEVEL ADJ	10-7
RV204	CH-2 LAU REC LEVEL ADJ	10-10
◎RV205	CH-2 LAU PB FRQ RESP ADJ	10-7
RV206	CH-2 S-VHS BIAS CURRENT ADJ	10-9
RV207	CH-2 VHS BIAS CURRENT ADJ	10-8
RV301	CH-1 AFM DEV ADJ	10-6
◎RV302	CH-1 AFM 1.3 MHz ADJ	10-5
RV401	CH-2 AFM DEV ADJ	10-6
◎RV402	CH-2 AFM 1.7 MHz ADJ	10-5
RV501	AGC ON LEVEL	11-3
RV571	AGC OFF LEVEL	11-3
RV601	Y IN (D/A) LEVEL	11-4
RV602	C IN (D/A) LEVEL	11-4
RV671	SEP C LEVEL	11-4
◎RV831	MIX Y LEVEL	11-6
◎RV832	MIX C LEVEL	11-6
◎RV901	S-Y OUT LEVEL	11-5
◎RV902	S-C OUT LEVEL	11-5
T2	BIAS OSC FRQ	10-8

VO-47 board		page
CT500	PB Y/C DELAY	11-22
◎CV500	PB FSC OUT	11-16
◎RV11	VHS DEMOD LEVEL	11-11
◎RV12	S-VHS DEMOD LEVEL	11-11
RV14	VHS DARK CLIP LEVEL	11-10
RV15	VHS WHITE CLIP LEVEL	11-10
RV16	S-VHS SYNC CARRIER	11-14
RV17	S-VHS DEVIATION	11-14
RV18	VHS SYNC CARRIER	11-15
RV19	VHS DEVIATION	11-15
RV101	SUB EMPHASIS INPUT LEVEL	11-9
RV152	S-VHS REC Y RF LEVEL	11-16
RV153	VHS REC Y RF LEVEL	11-16
RV201	S-VHS REC Y LEVEL	11-9
◎RV301	DOC LEVEL	11-13
◎RV351	S-VHS PB Y LEVEL	11-12
RV401	320FH VCO	11-17
RV403	REC Y/C DELAY	11-21
RV404	REC C RF LEVEL	11-24
◎RV503	CONVERTER BAL	11-18
◎RV505	320FH VCO	11-17
◎RV700	CROSSTALK CANCELLER	11-18
◎RV701	CROSSTALK CANCELLER	11-18
◎RV901	ANALOG CNR	11-19
◎RV902	ANALOG CNR	11-19
◎RV951	CAI CARRIER	11-19
◎RV952	CAI CARRIER	11-19
◎RV953	PB C OUT LEVEL	11-20
◎RV954	PB CHROMA PHASE	11-20

7-2. EQUIPMENT USED FOR ELECTRICAL ALIGNMENT

It is recommended to use either the equipment described below or equivalents as measure equipment and signal generator.

[Measure Equipment]
- Oscilloscope (TEKTRONIX 2445B/150 MHz or more)
- Waveform Monitor/Vector Scope (TEKTRONIX 1750A)
- Audio Level Meter (HEWLETT PACKARD HP3400)
- Frequency Counter (ADVANTEST TR5821AK)

[Signal Generator]
- Multiformat Signal Generator (TEKTRONIX TSG-130 with S-VIDEO OUT)
- Audio Signal Generator (HEWLETT PACKARD HP8904)

[Tool]
- VH-245 Extension Board (Sony Part No. J-6382-450-A)
- VH-246 Extension Board (Sony Part No. J-6382-460-A)
- Y/C Delay Adjustment Tool (Sony Part No. J-6381-900-A)
- S-BNC Video Cable (Sony Part No. J-6381-380-A)
- Video Cable with S connector
- Alignment Tape
  - KRV-31NS (Sony Part No. 8-192-603-11)
  - KRV-35NF (Sony Part No. 8-192-603-51)
  - KRV-36NF (Sony Part No. 8-192-603-61)
  - KRV-51HN (S-VHS) (Sony Part No. 8-192-605-21)
  - KRV-51N (N-VHS) (Sony Part No. 8-192-605-31)
- Blank Tape
  - N-VHS Tape (GR-120KG : Sony Part No. 8-896-024-94)
  - S-VHS Tape

7-3. ELECTRICAL ALIGNMENT WITH REPLACEMENT OF MECHANICAL PARTS

As to SVP-5600, perform the adjustments marked with ◎.
As to SVO-5800, perform all adjustments as shown below.

7-3-1. Adjustment for Audio Head Ass'y Replacement

10-2. NORMAL (LAU) REC Reference Level Setting.
◎10-6. LAU PB Level Adjustment.
◎10-7. LAU PB Frequency Response Adjustment.
10-9. LAU VHS Bias Current Adjustment.
10-10. LAU S-VHS Bias Current Adjustment.
10-11. LAU REC Level Adjustment.

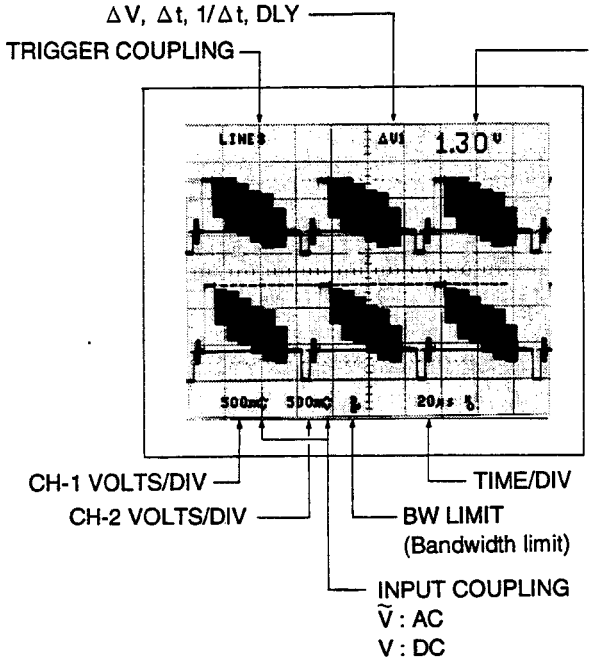
7-3-2. Adjustment for Capstan Motor Replacement

◎9-1. Capstan FG Duty Ratio Adjustment (AUTO)

7-4. SETTING OF EQUIPMENT FOR ELECTRICAL ALIGNMENT

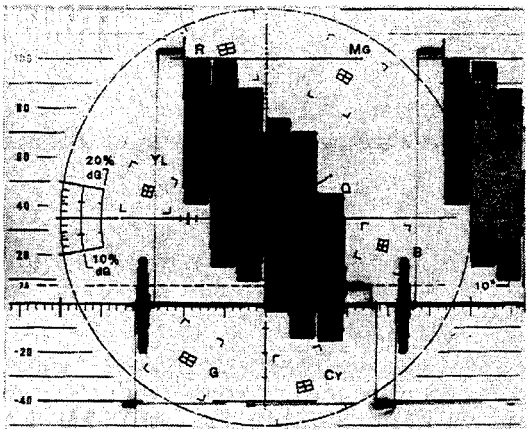
Oscilloscope

· With waveform photograph used for waveform display :
The setting conditions are displayed on the photograph as given below.

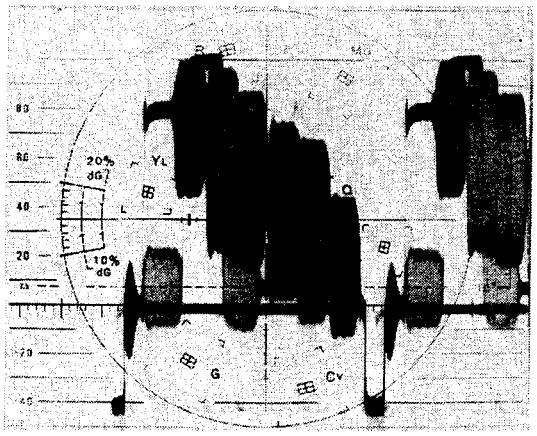


7-5. TEST SIGNAL FOR VIDEO SYSTEM

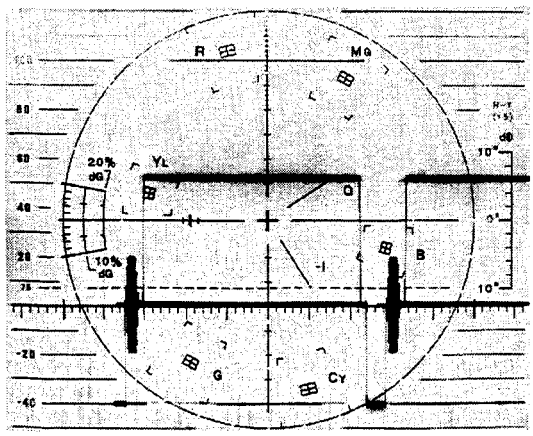
1. 75% COLOR BARS



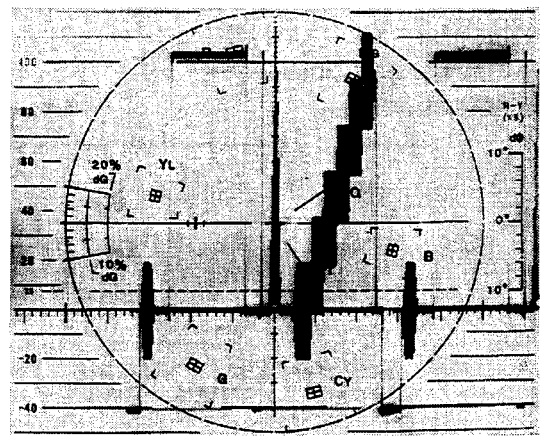
2. ALIGNMENT TAPE KRV-51HN/KRV-51N



3. 50% FLAT FIELD



4. NTC-7 COMPST



7-6. SET-UP MENU

For details, refer to section 1 "OPERATING INSTRUCTION".

How to enter and setting of the set-up menu.

1. Press the MENU Key.
   Then the menu of the level 1 is displayed.
2. Press the (↑), (↓) keys to select the item to change.
   Move the high lighted item to select the item on a monitor display.
3. Press the (→) key at the item to select.
   Then the high lighted item is selected, and the menu of the level 2 is displayed.
4. Press the (↑), (↓) keys to select the item to change.
   Move the high lighted item to select the item on a monitor display.
5. Press the (→) key at the item is select.
   Then the high lighted item is selected, and the menu of the level 3 is displayed.
6. Press the (↑), (↓) keys to select the setting item.
7. Press the SET (YES) key.
   Then the new setting is saved in the memory.

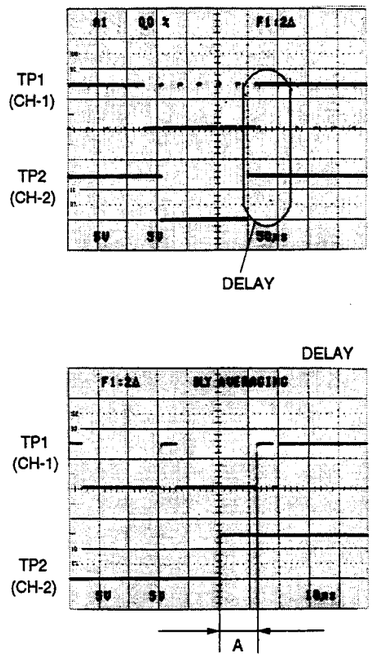
How to close the set-up menu.

Press the MENU key.

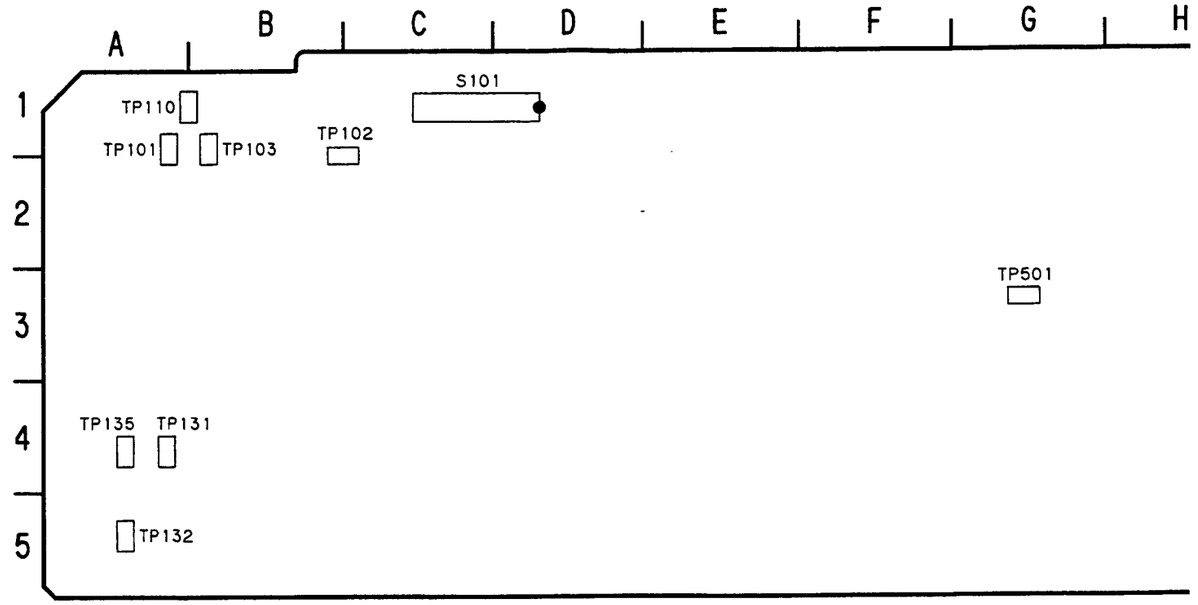
SECTION 8
SYSTEM CONTROL ALIGNMENT

[Equipment Required]
- Multiformat signal generator
- Oscilloscope
- VH-245 extension board
- Super-VHS blank tape

8-1. V SYNC PULSE ADJUSTMENT

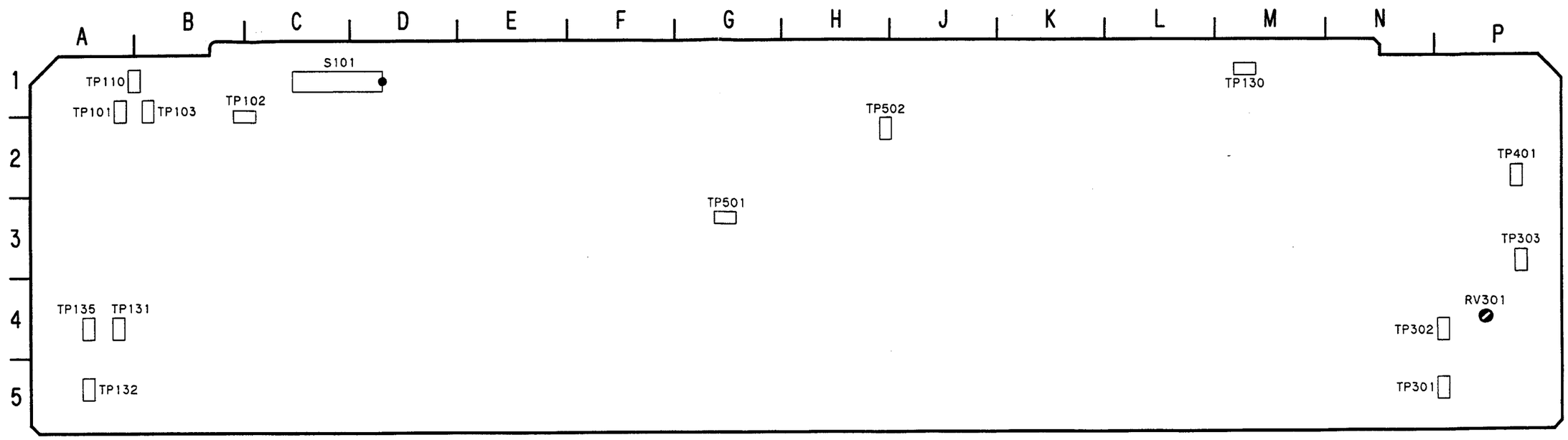
Machine condition for adjustment	Specifications	Adjustments
SVO-5800 · S VIDEO IN : 75% color bars signal · Insert a S-VHS blank tape. · STOP (E-E) mode SVP-5600 · Play back the color bars signal (SP) portion of the alignment tape KRV-51HN.	CH-1 : TP301/SS-58 (P-5) CH-2 : TP302/SS-58 (P-4)  A = 12±2 μs	⊘RV301/SS-58 (P-4) Trigger : CH-1

Location of RV, S and TPs on SS-58 board (A side)



8-1

Location of RV, S and TPs on SS-58 board (A side)



8-1
8-1

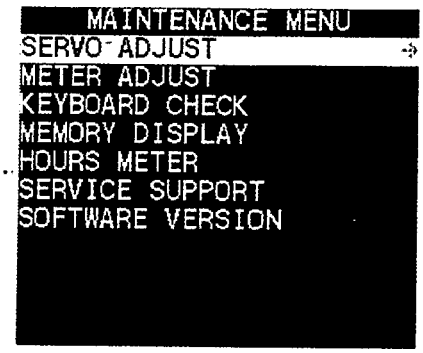
SECTION 9
SERVO ALIGNMENT

The servo alignment is adjusted in the maintenance menu, SERVO ADJUST.
(Refer to 2-20-2. SERVO ADJUST)

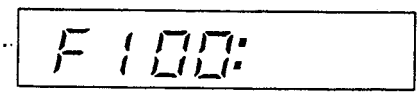
[Equipment Required]
- Oscilloscope
- VH-246 extension board

[Procedure]
1. Set the S101-3 on the SS-58 board to ON.
2. While pressing the (←) key, press the MENU key.
   Then the unit enters into the maintenannce menu, and the menu picture is displayed on the monitor.
3. Move the high lighted item to the "SERVO ADJUST" on the monitor display using the (↑), (↓) keys.
4. Press the (→) key.
   Then "SERVO ADJUST" is selected, and the menu of the lower level is displayed.

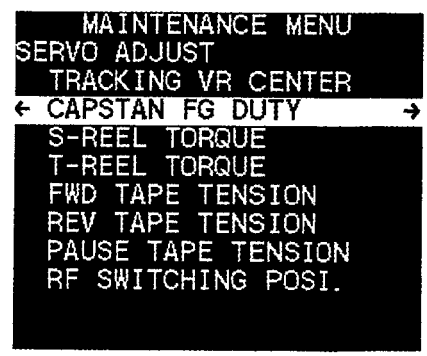
Video monitor ·····

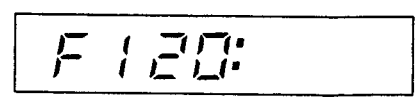


Time counter ·····



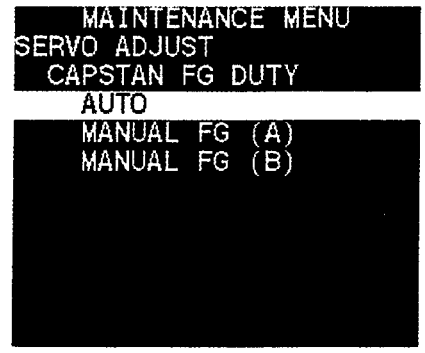
5. Move the high lighted item to the "CAPSTAN FG DUTY" on the monitor display using the (↑), (↓) keys.
6. Press the (→) key.
   Then "CAPSTAN FG DUTY" is selected, and the menu of the lower level is displayed.
7. Move the high lighted item to the item to select, using the (↑), (↓) keys.
8. Press the (→) key, and execute the high lighted item. (Refer to each page of menu item about a method of adjustment.)
9. When adjustment is finished, press the (←) key to return to the menu picture.
10. If there are other menus or sub menus wishing to be checked, repeat steps 5 to 9.
11. When closing the maintenace menu, press the MENU key.
12. Set the S101-3 on the SS-58 board to OFF.

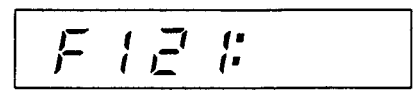




9-1. CAPSTAN FG DUTY RATIO ADJUSTMENT (AUTO)

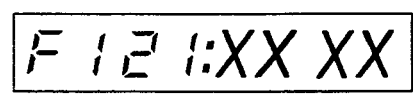
1. Move the high lighted item to the "AUTO" on the monitor display using the (↑), (↓) keys.





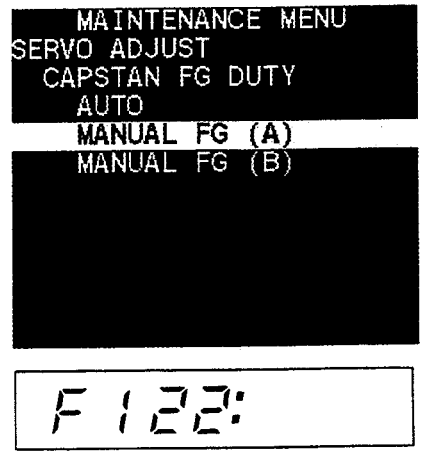
2. Press the (→) key.
   Then "AUTO" is selected, and the content of the selected item is displayed.
   The channel-A adjustment value is shown in the left and the channel-B adjustment value is shown in the right.
   Confirm that adjustment is performed, and "ADJUSTMENT COMPLETE" appears.

   In case of NG:
   "INCOMPLETE" appears on the monitor display showing that the adjustment could not be completed within the specified time. Perform the "AUTO Adjustment" again or proceed to the "MANUAL Adjustment".

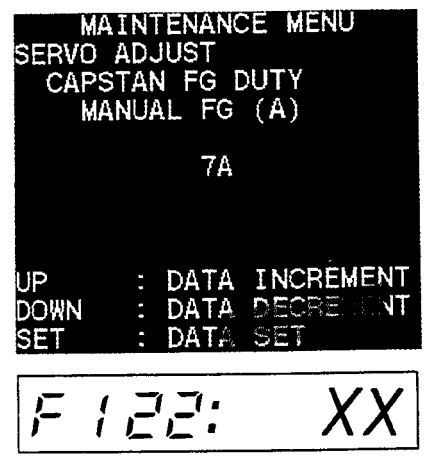


9-2. CAPSTAN FG DUTY RATIO ADJUSTMENT (MANUAL FG (A))

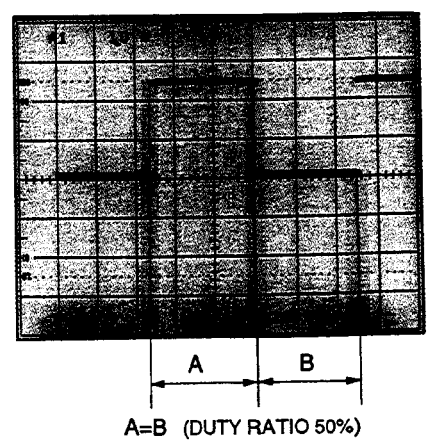
1. Move the high lighted item to the "MANUAL FG (A)" on the monitor display using the (↑), (↓) keys.



2. Press the (→) key.
Then "MANUAL FG (A)" is selected, and the content of the selected item is displayed.

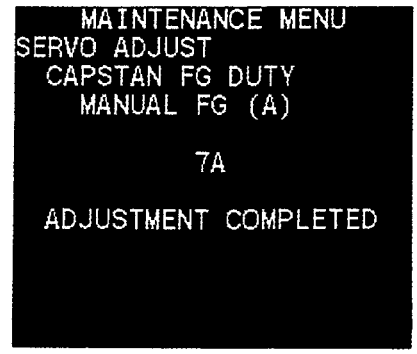


3. Measure TP503 of DR-265 board with an oscilloscope. Make adjustment to obtain the duty ratio 50% using the (↑), (↓) keys.



A=B (DUTY RATIO 50%)

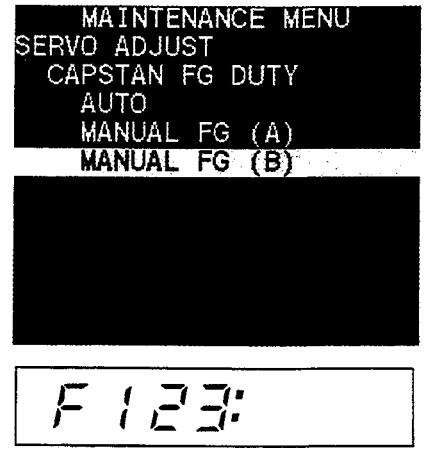
4. Press the SET (YES) key.
   Confirm that adjustment is performed, and "ADJUSTMENT COMPLETED" is displayed.



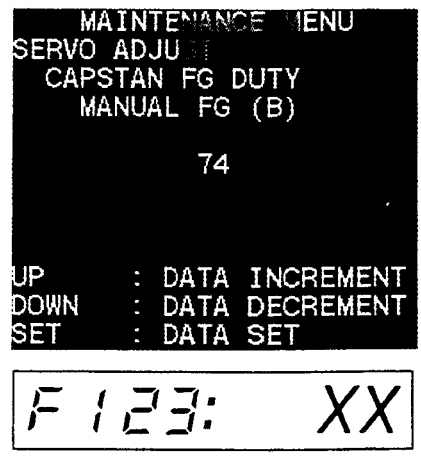
Note : If the MENU key is pressed without pressing the SET (YES) key in the following adjustments, "ABORT!" appears on the monitor display without saving the new adjustment data.
The data before starting the adjustment is saved and the maintenance menu terminates.

9-3. CAPSTAN FG DUTY RATIO ADJUSTMENT (MANUAL FG (B))

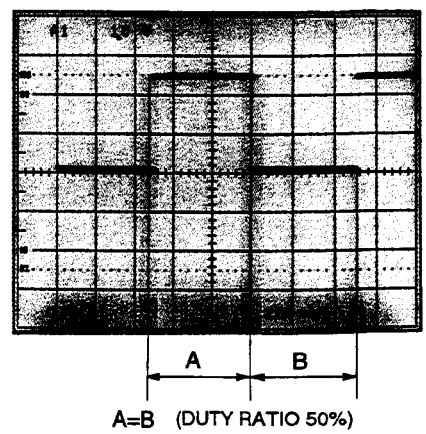
1. Move the high lighted item to the "MANUAL FG (B)" on the monitor display using the (↑), (↓) keys.



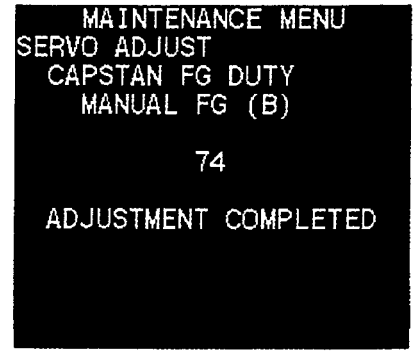
2. Press the (→) key.
The "MANUAL FG (B)" is selected, and the content of the selected item is displayed.



3. Measure TP504 of DR-265 board with an oscilloscope. Make adjustment to obtain the duty ratio 50% using the (↑), (↓) keys.

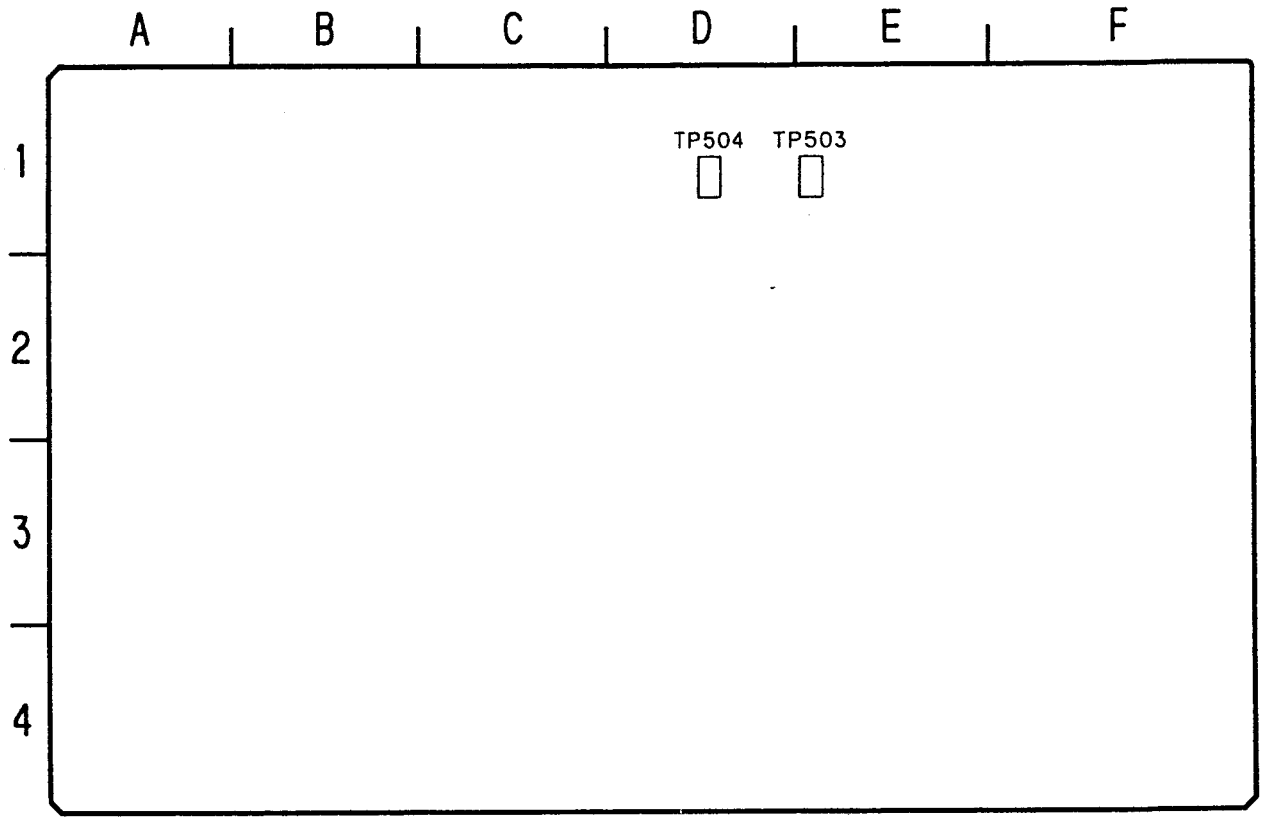


4. Press the SET (YES) key.
   Confirm that adjustment is performed, and "ADJUSTMENT COMPLETED" is displayed.



Note : If the MENU key is pressed without pressing the SET (YES) key in the following adjustments, "ABORT!" appears on the monitor display without saving the new adjustment data.
The data before starting the adjustment is saved and the maintenance menu terminates.

Location of TPs on DR-265 board (A side)



SECTION 10
AUDIO ALIGNMENT

[Equipment Required]

- Oscilloscope
- Audio signal generator
- Audio level meter
- Frequency counter
- VH-245 extension board
- Super-VHS blank tape
- Normal-VHS blank tape
- Alignment tape

Alignment Tape Name (Part No.)	REC mode	Contents	
		Video area	Audio area
KRV-31NS (8-192-603-11)	SP	· No signal	· Normal 7 kHz 15 seconds, 400 Hz 15 seconds (7 kHz, 400 Hz alternately)
KRV-35NF (8-192-603-51)	SP	· Color bars	· Hi-Fi 400 Hz (stereo)
KRV-36NF (8-192-603-61)	SP	· Color bars	· Hi-Fi 400 Hz (stereo)

[Setting of switches]

This settings should be changed in position unless otherwise specified.

FRONT PANEL

REMOTE/LOCAL switch ····· LOCAL
METER switch ····· Hi-Fi
CH-2 METER switch ····· AUDIO
MONITOR OUT switch ····· MIX

REAR PANEL

AUDIO IN reference input level select switch (NORMAL/Hi-Fi) ··· +4 dBm
AUDIO IN reference input level select switch (Hi-Fi) ····· +4 dBm
Reference output level select switch ····· +4 dBm

CP-247 Board

AUDIO IN 600 Ω terminated switch(S100, S200, S300, S400) ··· 600Ω
Usually, AUDIO IN 600 Ω terminated switch is set ON. When the switch setting changed or checked, refer to "2-14. Switch Settings on the boards".)

[Setting of set-up menu]

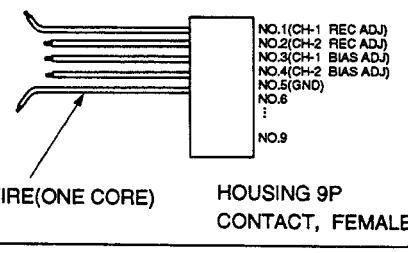
- VIDEO CONTROL
  - S-VHS REC MODE : ON

- AUDIO CONTROL
  - LINE OUT : NORMAL
  - Hi-Fi REC : ON
  - Hi-Fi REC SEL : Hi-Fi INPUT
  - DOLBY NR : OFF
  - LIMITER : OFF
  - NORMAL CH-2 : AUDIO
  - NORMAL CH-1 REC : CH-1 ONLY

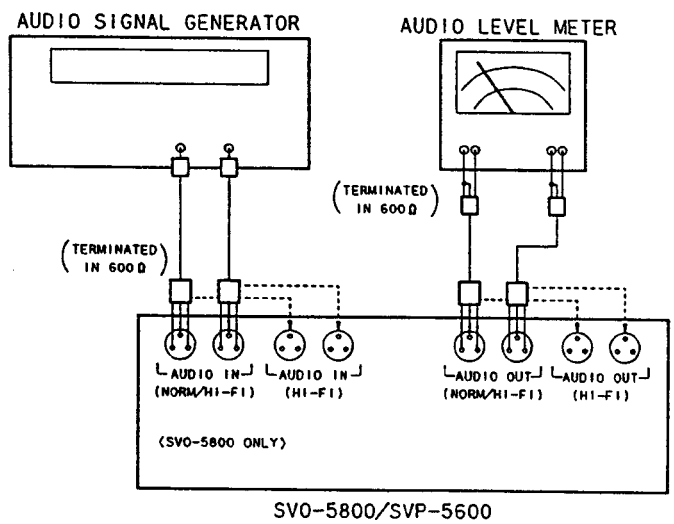
[Note]

- * marked are alignments for SVO-5800 and SVP-5600. Another alignments are for SVO-5800.
- For "10-9. LAU VHS BIAS CURRENT ADJUSTMENT", "10-10. LAU S-VHS BIAS CURRENT ADJUSTMENT", "10-11. LAU REC LEVEL ADJUSTMENT", use the ** CN4 connector connection tool.
- After the rec reference level setting is completed, the set position of the AUDIO LEVEL control knob should not be moved until audio alignment is completed.
- "Blank tape" indicates a cassette tape on which no video/audio signals are recorded.
- The alignment tape is used within the limits of about 50 times and recommend to manage by marking.
- For menu setting, refer to SECTION 1 "Changing the Settings of the Unit - Set-up Menu".
  (Set-up menu on audio alignment is setting of "AUDIO CONTROL/AUDIO SIGNAL" control.)
- Use the extension board VH-245 for alignment. Connect the extension board after power OFF.
- 0 dBu = 0.775 Vrms
- Perform the AUDIO LINE OUT measurement on UNBALANCE connection.

** CN4(connector) connection tool
Housing (Sony part No. 1-569-202-11)
Contact (Sony part No. 1-569-193-11)
Shield wire AWG-26



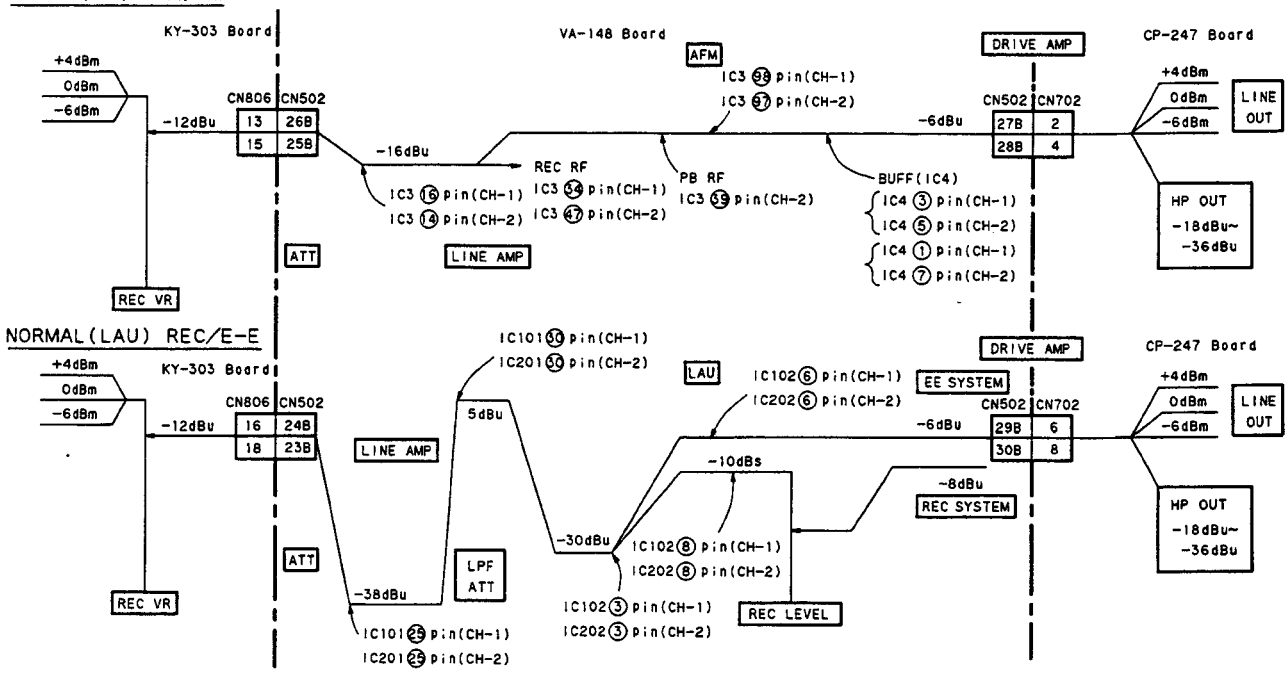
[Connection]



SVO-5800/SVP-5600

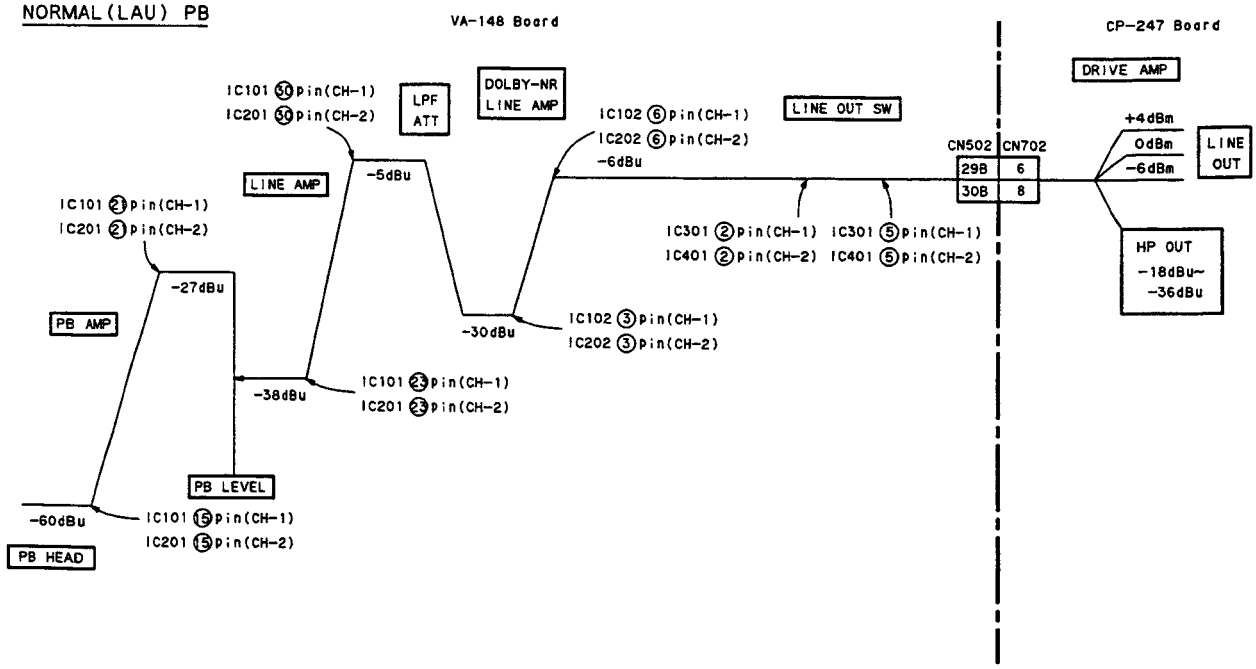
[AUDIO LEVEL DIAGRAMS]

Hi-Fi(FM) REC/PB



NORMAL(LAU) REC/E-E

NORMAL(LAU) PB



0 dBu = 0.775 Vrms

10-1. Hi-Fi (AFM) REC REFERENCE LEVEL SETTING

Machine condition for adjustment	Specifications	Adjustments
· CH-1,2 AUDIO IN (Hi-Fi): 1 kHz, +4 dBm (terminated with 600 Ω)	CH-1 : AUDIO OUT (Hi-Fi) <terminated with 600Ω> CH-2 : AUDIO OUT (Hi-Fi) <terminated with 600Ω> +4.0±0.1 dBm Then, check the audio level meter indicates 0 dB (one of red LEDs lights) both CH-1 and CH-2. (Fine adjustment of audio level meter is able to perform on AUDIO METER ADJUST in maintenance menu.)	⊘CH-1 : AUDIO LEVEL Hi-Fi knob/ Front panel ⊘CH-2 : AUDIO LEVEL Hi-Fi knob/ Front panel

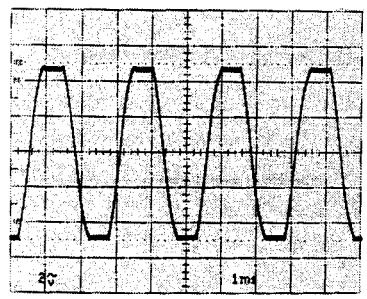
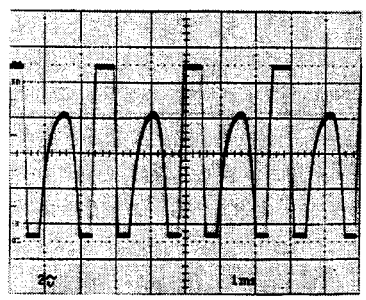
10-2. NORMAL (LAU) REC REFERENCE LEVEL SETTING

Machine condition for adjustment	Specifications	Adjustments
· CH-1,2 AUDIO IN (NORMAL/Hi-Fi) : 1 kHz, +4 dBm (terminated with 600Ω) · METER switch : NORMAL · After the adjustment, set the METER switch to Hi-Fi.	CH-1 : AUDIO OUT (NORMAL/Hi-Fi) <terminated with 600 Ω> CH-2 : AUDIO OUT (NORMAL/Hi-Fi) <terminated with 600 Ω> +4.0±0.1 dBm	⊘CH-1 : AUDIO LEVEL NORM knob/Front panel ⊘CH-2 : AUDIO LEVEL NORM knob/Front panel

10-3. * AFM CARRIER ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· CH-1,2 AUDIO IN (Hi-Fi) : No signal	TP308/VA-148 (C-3) 1.3000±0.0050 MHz	⊘RV302/VA-148 (C-3)
· Connect the frequency counter to test point (TP) through the oscilloscope.	TP408/VA-148 (C-4) 1.7000±0.0050 MHz	⊘RV402/VA-148 (C-3)

10-4. * AFM BPF ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· Play back the alignment tape KRV-36NF.	CH-1 : CN502-27B/VA-148(D-4) <TP627B/VH-245> CH-2 : CN502-28B/VA-148(D-4) <TP628B/VH-245> OK  NG 	⊘RV1/VA-148 (C-3)

10-5. AFM DEVIATION ADJUSTMENT

Step1

Machine condition for adjustment	Specifications	Adjustments
• Connect the audio level meter to AUDIO OUT (Hi-Fi). • Play back the alignment tape KRV-35NF.	CH-1 : AUDIO OUT (Hi-Fi) <terminated with 600Ω> CH-2 : AUDIO OUT (Hi-Fi) <terminated with 600Ω> +4.0±0.3 dBm	◐CH-1 : RV301/VA-148 (C-3) ◐CH-2 : RV401/VA-148 (D-4)

Step2

Machine condition for adjustment	Specifications	Adjustments
• CH-1,2 AUDIO IN (Hi-Fi) : 400 Hz, +4 dB (terminated with 600 Ω) • Insert a S-VHS blank tape and perform the self-recording. (While pressing the REC button, press the PLAY button.) • Perform the self-play back. (measurement)	CH-1 : AUDIO OUT (Hi-Fi) <terminated with 600Ω> CH-2 : AUDIO OUT (Hi-Fi) <terminated with 600Ω> +4.0±1.3 dBm Check the specification is satisfied.	

10-6. * LAU PB LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· Connect the audio level meter to AUDIO OUT (NORMAL/Hi-Fi). · METER switch : NORMAL · Play back the 400 Hz portion of the alignment tape KRV-31NS.	CH-1 : AUDIO OUT (NORMAL/Hi-Fi) <terminated with 600 Ω> CH-2 : AUDIO OUT (NORMAL/Hi-Fi) <terminated with 600 Ω> +4.0±0.2 dBm	⊘CH-1 : RV103/VA-148 (H-1) ⊘CH-2 : RV203/VA-148 (F-1)

10-7. * LAU PB FREQUENCY RESPONSE ADJUSTMENT

Step1

Machine condition for adjustment	Specifications	Adjustments
· Connect the audio level meter to AUDIO OUT (NORMAL/Hi-Fi). · Play back the 7 Hz portion of the alignment tape KRV-31NS.	CH-1 : AUDIO OUT (NORMAL/Hi-Fi) <terminated with 600 Ω> CH-2 : AUDIO OUT (NORMAL/Hi-Fi) <terminated with 600 Ω> +4.0±0.2 dBm	⊘CH-1 : RV105/VA-148 (H-1) ⊘CH-2 : RV205/VA-148 (G-1)

Step2

Machine condition for adjustment	Specifications	Adjustments
· Connect the audio level meter to AUDIO OUT (NORMAL/Hi-Fi). · Play back the 400 Hz portion of the alignment tape KRV-31NS.	CH-1 : AUDIO OUT (NORMAL/Hi-Fi) <terminated with 600 Ω> CH-2 : AUDIO OUT (NORMAL/Hi-Fi) <terminated with 600 Ω> +4.0±0.2 dBm Check the Step 1. When the specification is not satisfied, repeat Step 1 and Step 2 until the specifications are satisfied.	⊘CH-1 : RV103/VA-148 (H-1) ⊘CH-2 : RV203/VA-148 (F-1)

10-8. BIAS OSCILLATOR FREQUENCY ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· CH-1, 2 AUDIO IN (NORMAL/Hi-Fi) : No signal · Insert a N-VHS blank tape. · REC mode (While pressing the REC button, press the PLAY button.) · Connect the frequency counter to test point (C128) through the oscilloscope.	C128/VA-148 (D-1) 71±3 kHz	⊘T2/VA-148 (C-2)

10-9. LAU VHS BIAS CURRENT ADJUSTMENT

Step1

Machine condition for adjustment	Specifications	Adjustments
· CH-1, 2 AUDIO IN (NORMAL/Hi-Fi) : 10 kHz, -6 dBm (terminated with 600 Ω) · Connect the audio level meter to AUDIO OUT (NORMAL/Hi-Fi). · Insert a N-VHS blank tape and perform the self-recording. (While pressing the REC button, press the PLAY button.) · Perform the self-play back. (measurement)	CH-1 : AUDIO OUT (NORMAL/Hi-Fi) <terminated with 600 Ω> CH-2 : AUDIO OUT (NORMAL/Hi-Fi) <terminated with 600 Ω> +0.5±1.0 dBm When the specification is not satisfied, perform Step 2.	

Step2

Machine condition for adjustment	Specifications	Adjustments
· CH-1, 2 AUDIO IN (NORMAL/Hi-Fi) : No signal · Insert a N-VHS blank tape. · REC mode (While pressing the REC button, press the PLAY button.)	CH-1 : CN4-3/VA-148(D-1) CH-2 : CN4-4/VA-148(D-1) · With measured value of Step 1 is higher than reference value, Increase the level of CN4-3/VA-148(D-1)<CH-1> or CN4-4/VA-148(D-1)<CH-2> · With measured value of Step 1 is lower than reference value, Decrease the level of CN4-3/VA-148(D-1)<CH-1> or CN4-4/VA-148(D-1)<CH-2> Repeat Step 1 and Step 2 until the specification of Step 1 is satisfied.	⊘CH-1 : RV107/VA-148 (D-1) ⊘CH-2 : RV207/VA-148 (C-1)

10-10. LAU S-VHS BIAS CURRENT ADJUSTMENT

Step1

Machine condition for adjustment	Specifications	Adjustments
· CH-1,2 AUDIO IN (NORMAL/Hi-Fi) : 10 kHz, -6 dBm (terminated with 600 Ω) · Connect the audio level meter to AUDIO OUT (NORMAL/Hi-Fi). · Insert a S-VHS blank tape and perform the self-recording. (While pressing the REC button, press the PLAY button.) · Perform the self-play back. (measurement)	CH-1 : AUDIO OUT (NORMAL/Hi-Fi) <terminated with 600 Ω> CH-2 : AUDIO OUT (NORMAL/Hi-Fi) <terminated with 600 Ω> +0.5±1.0 dBm When the specification is not satisfied, perform Step 2.	

Step2

Machine condition for adjustment	Specifications	Adjustments
· CH-1,2 AUDIO IN (NORMAL/Hi-Fi) : No signal · Insert a S-VHS blank tape. · REC mode (While pressing the REC button, press the PLAY button.)	CH-1 : CN4-3/VA-148(D-1) CH-2 : CN4-4/VA-148(D-1) · With measured value of Step 1 is higher than reference value, Increase the level of CN4-3/VA-148(D-1)<CH-1> or CN4-4/VA-148(D-1)<CH-2> · With measured value of Step 1 is lower than reference value, Decrease the level of CN4-3/VA-148(D-1)<CH-1> or CN4-4/VA-148(D-1)<CH-2> Repeat Step 1 and Step 2 until the specification of Step 1 is satisfied.	⊘CH-1 : RV106/VA-148 (D-1) ⊘CH-2 : RV206/VA-148 (C-1)

10-11. LAU REC LEVEL ADJUSTMENT

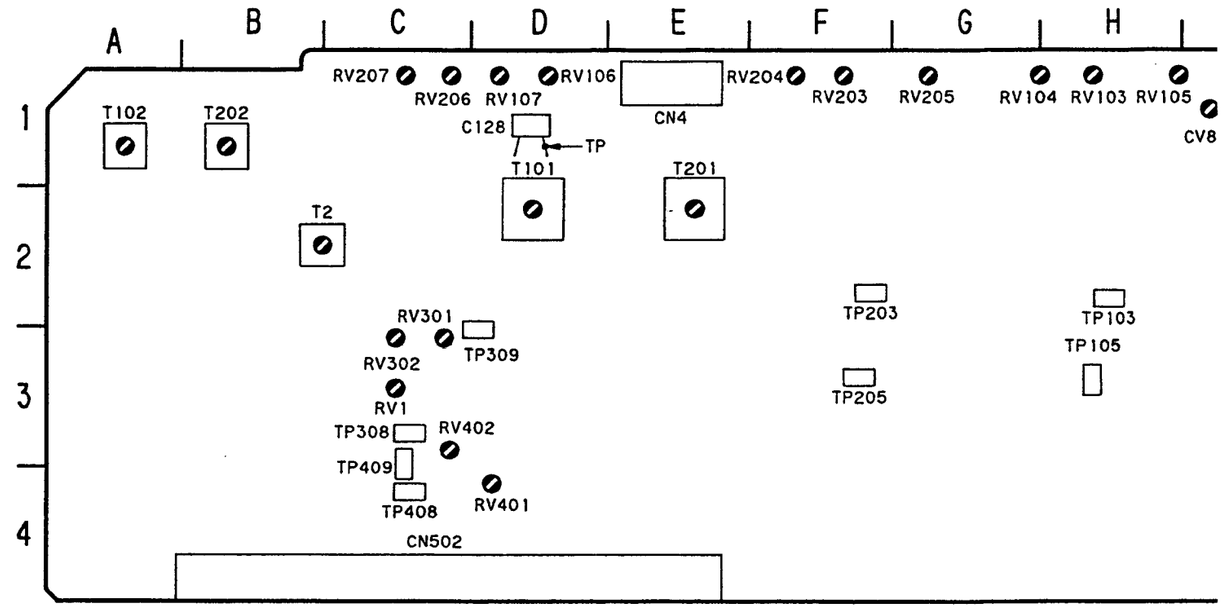
Step1

Machine condition for adjustment	Specifications	Adjustments
· CH-1,2 AUDIO IN (NORMAL/Hi-Fi) : 1 kHz, +4 dBm (terminated with 600 Ω) · Connect the audio level meter to AUDIO OUT (Normal/Hi-Fi). · Insert a N-VHS blank tape and perform the self-recording. (While pressing the REC button, press the PLAY button.) · Perform the self-play back. (measurement)	CH-1 : AUDIO OUT (NORMAL/Hi-Fi) <terminated with 600 Ω> CH-2 : AUDIO OUT (NORMAL/Hi-Fi) <terminated with 600 Ω> +4.0±0.5 dBm · When the specification is not satisfied, check the measured value and perform Step 2. · Calculate the difference between the reference value (+4 dBm) and the measured value in measurement for CH-1 and CH-2. Correction value=Reference value-Measured value	

Step2

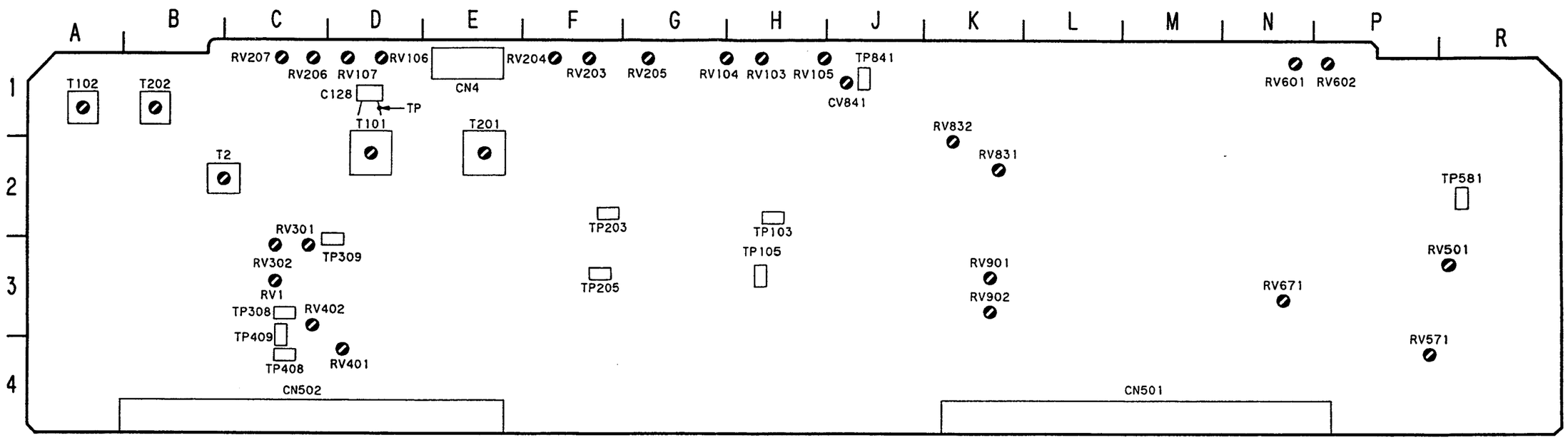
Machine condition for adjustment	Specifications	Adjustments
· CH-1, 2 AUDIO IN (NORMAL/Hi-Fi) : 1 kHz, +4 dBm (terminated with 600 Ω) · Connect the audio level meter to CN4-1 or CN4-2/VA-148 (D-1). · Insert a N-VHS blank tape. · REC mode (While pressing the REC button, press the PLAY button.)	CH-1 : CN4-1/VA-148(D-1) CH-2 : CN4-2/VA-148(D-1) · Check the measured value at test point. Established value=Measured value-Correction value · Set the output level to above established value, and perform Step 1 again. ex.) Step 1 Reference value +4.0 dBm Measured value +3.0 dBm Correction value = +4.0 dBm - (+3 dBm) = +1.0 dB Step 2 Measured value -19 dBu Established value = -19 dBu - (+1.0 dB) = -20 dBu	⊘CH-1 : RV104/VA-148 (H-1) ⊘CH-2 : RV204/VA-148 (F-1)

Location of CNs, RVs, Ts and TPs on VA-148 board (A side)



10-11

Location of CNs, RVs, Ts and TPs on VA-148 board (A side)



10-11
10-11

SECTION 11
VIDEO ALIGNMENT

[Equipment Required]

- Oscilloscope
- Frequency counter
- Multiformat signal generator (with S-VIDEO OUT)
- Waveform monitor/Vector scope
- Y/C delay adjustment tool
- S-BNC video cable (Output Level Adjustment)
- Video cable with S connector
- VH-245 extension board
- Normal-VHS blank tape
- Super-VHS blank tape
- Alignment tape

Alignment Tape Name (Part No.)	REC mode	Contents	
		Video Area	Audio Area
KRV-51N (Normal-VHS)	SP	· Color bars 5 min.	no signal
(8-192-605-31)	EP	· Color bars 5 min.	no signal
KRV-51HN (Super-VHS)	SP	· Color bars 5 min.	no signal
(8-192-605-21)	EP	· Color bars 5 min.	no signal

[Setting of switches and volumes]

FRONT PANEL

- REMOTE/LOCAL switch ... LOCAL
- VIDEO IN SELECT switch ... S VIDEO
- CTL/TC/U-BIT switch ... CTL
- LTC/AUTO/VITC switch ... LTC
- EXT/INT switch ... INT
- BYPASS/LOCAL/REMOTE switch ... BYPASS
- YC DELAY switch ... 4
- TRACKING control knob ... Center Click
- SYNC PHASE screw ... Fully Counterclockwise
- SC PHASE screw ... Fully Counterclockwise
- VIDEO control knob ... Center Click
- CHROMA control knob ... Center Click
- SET UP control knob ... Center Click
- HUE control knob ... Center Click

REAR PANEL

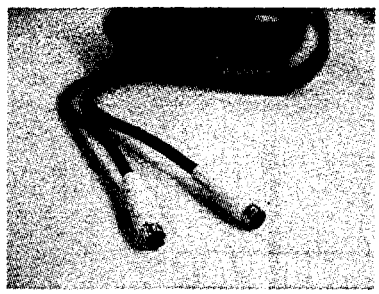
- TERMINATED with 75Ω switch (VIDEO IN) ... ON
- TERMINATED with 75Ω switch (REF VIDEO IN) ... ON

[Note]

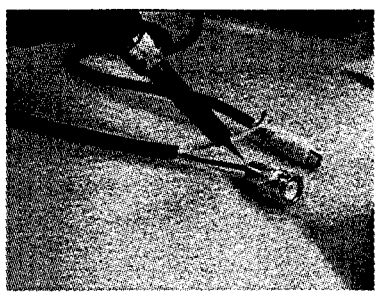
- * marked are alignments for SVO-5800 and SVP-5600.
  Another alignments are for SVO-5800.

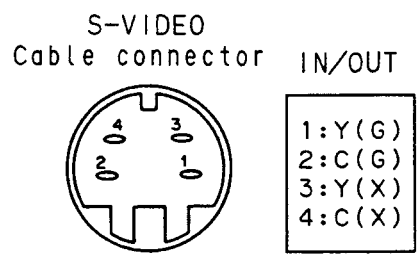
[Preparations and Notes on Alignment]

Making the cable for S-VIDEO output level adjustment
S-terminal (Y/C) convert cable (BNC × 2) is necessary to S-VIDEO output level adjustment.
Preparation : S-S terminal connection cable about 5 meters in length (standard product) (SONY YC-50KV)



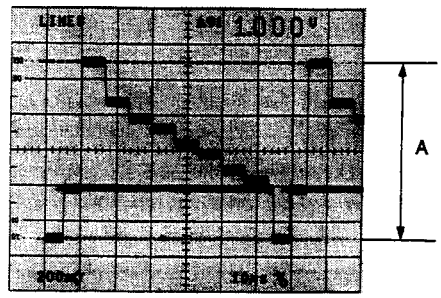
1. Cut the cable in half.
2. Tear and strip the cover of the cable with a cutter.
3. Strip the cover of the shield wire with a nipper.
4. Check the Y/C core wire with a tester.
5. Solder the BNC terminal for Y signal to the shield wire of Y signal in the cable and the BNC terminal for C signal to the shield wire of C signal. (Check the continuity with a tester.)



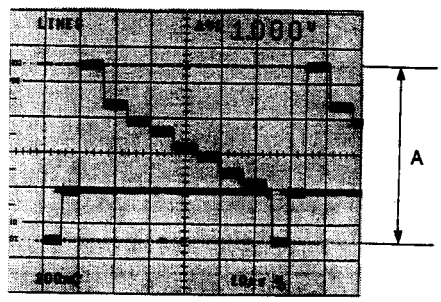


11-1. VA-148 BOARD ADJUSTMENT

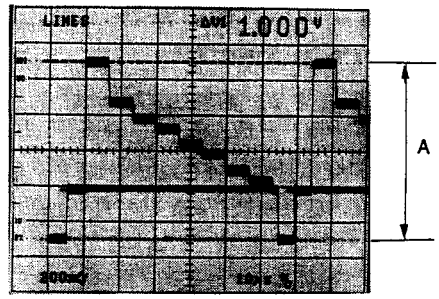
11-1-1. Y AGC ON LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· S VIDEO IN : 75% color bars signal · STOP (E-E) mode	CN501-16B/VA-148<TP416B/VH-245>  A=1.00±0.02 V p-p	⊘RV501/VA-148 (R-3)

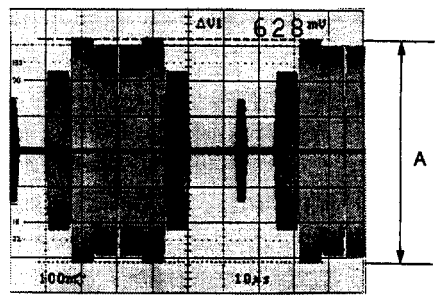
11-1-2. Y AGC OFF LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· S VIDEO IN : 75% color bars signal · Set-up menu VIDEO AGC : OFF · STOP (E-E) mode · After the adjustment, set the set-up menu VIDEO AGC to ON.	CN501-16B/VA-148<TP416B/VH-245>  A=1.00±0.02 V p-p	⊘RV571/VA-148 (P-4)

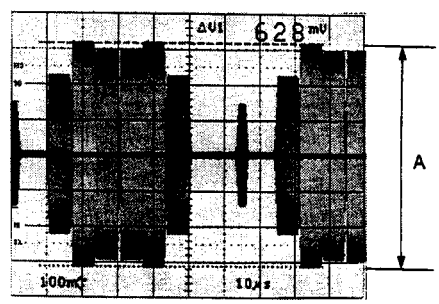
11-1-3. COMPOSITE IN Y LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· VIDEO IN : 75% color bars signal · Set-up menu VIDEO AGC : OFF · VIDEO IN SELECT switch : LINE · STOP (E-E) mode · After the adjustment, set the set-up menu VIDEO AGC to ON and set the VIDEO IN SELECT switch to S VIDEO.	CN501-16B/VA-148<TP416B/VH-245>  A=1.00±0.02 V p-p	◐RV601/VA-148 (N-1)

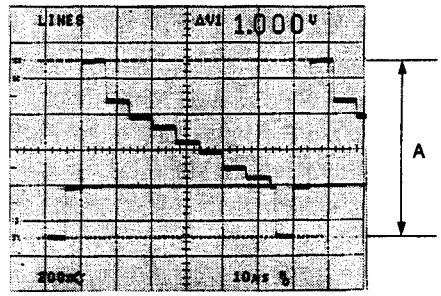
11-1-4. S-VHS CHROMA INPUT LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· S VIDEO IN : 75% color bars signal · STOP (E-E) mode	CN501-15B/VA-148<TP415B/VH-245>  A=628±10 mV p-p	◐RV671/VA-148 (N-3)

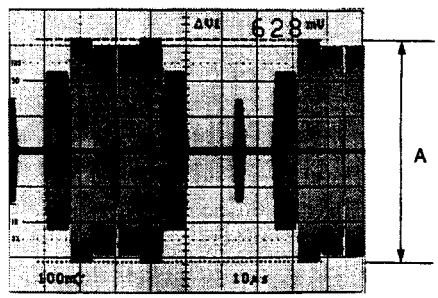
11-1-5. COMPOSITE CHROMA LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· VIDEO IN : 75% color bars signal · VIDEO IN SELECT switch : LINE · STOP (E-E) mode · After the adjustment, set the VIDEO IN SELECT switch to S VIDEO.	CN501-15B/VA-148<TP415B/VH-245>  A=628±10 mV p-p	◐RV602/VA-148 (P-1)

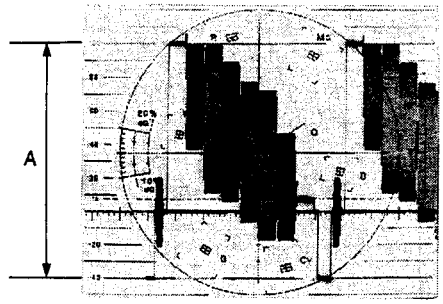
11-1-6. * S-VHS Y OUTPUT LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· S VIDEO IN : 75% color bars signal · STOP (E-E) mode	S-Y OUT 1 connector (terminated with 75 Ω)  A=1.00±0.02 V p-p	⊘RV901/VA-148 (K-3)

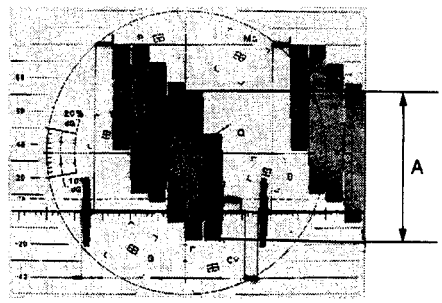
11-1-7. * S-VHS CHROMA OUTPUT LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· S VIDEO IN : 75% color bars signal · STOP (E-E) mode	S-C OUT 1 connector (terminated with 75 Ω)  A=628±10 mV p-p	⊘RV902/VA-148 (K-3)

11-1-8. * COMPOSITE MIX Y LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· S VIDEO IN : 75% color bars signal · STOP (E-E) mode	VIDEO OUT connector (terminated with 75 Ω)  	⊘RV831/VA-148 (K-2)
Waveform monitor/Vector scope · WAVEFORM	A=1.000±0.014V (140±2 IRE)	

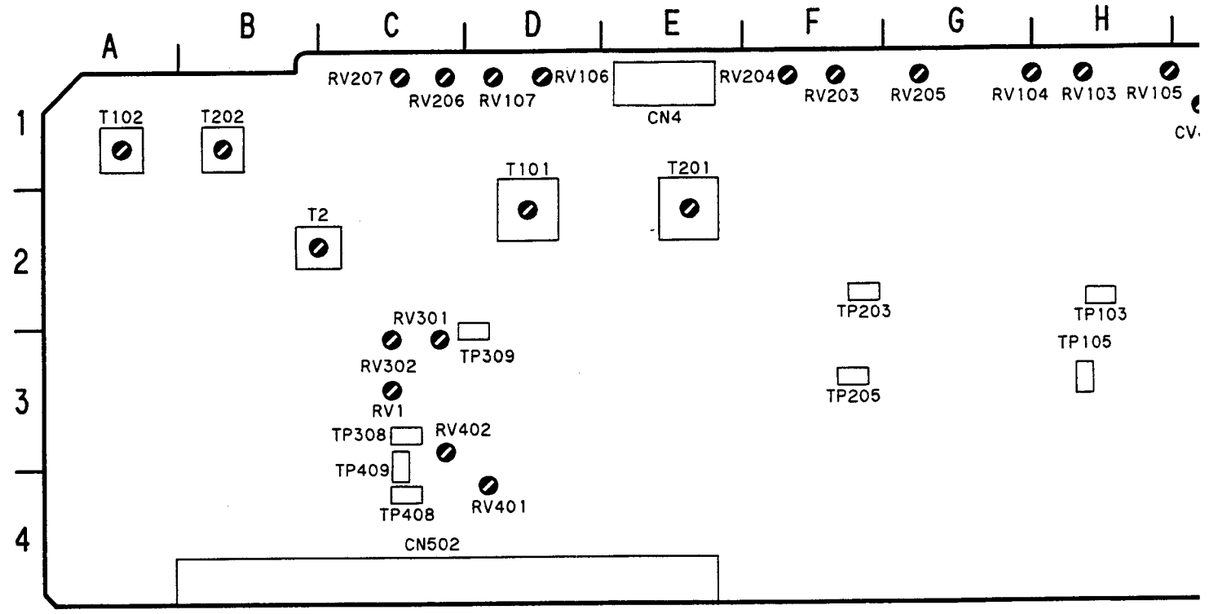
11-1-9. * COMPOSITE MIX CHROMA LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· S VIDEO IN : 75% color bars signal · STOP (E-E) mode	VIDEO OUT connector (terminated with 75 Ω)  	⊘RV832/VA-148 (K-2)
Waveform monitor/Vector scope · WAVEFORM	A=0.628±0.014 V (88±2 IRE) (A=Red level)	

11-1-10. * CHARACTER GENERATOR AFC ADJUSTMENT

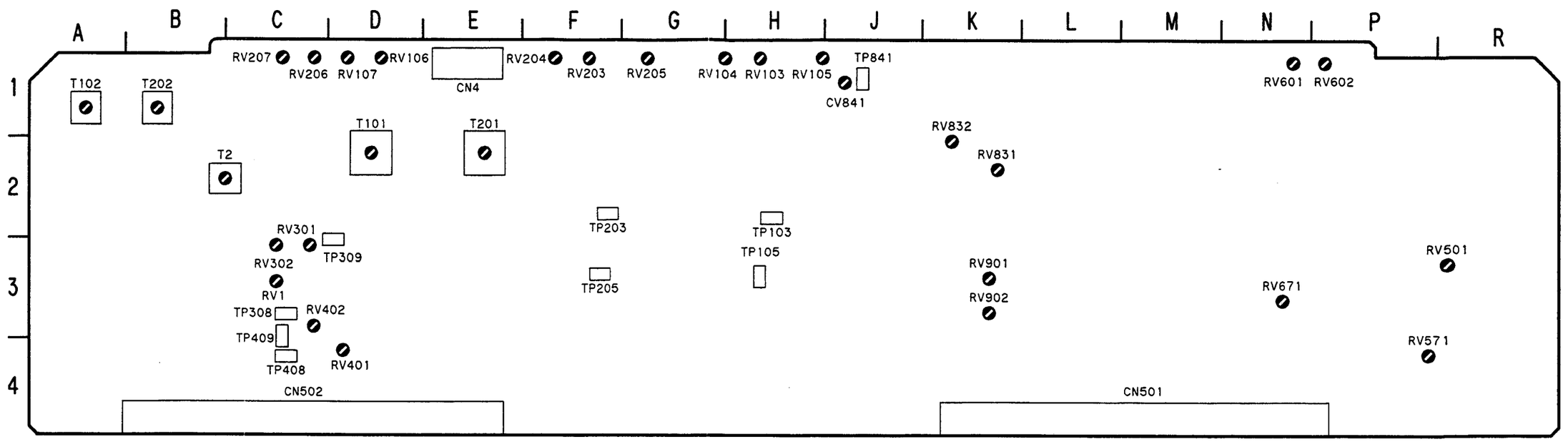
Machine condition for adjustment	Specifications	Adjustments
· S VIDEO IN : 75% color bars signal · STOP (E-E) mode	TP841/VA-148 (J-1) 2.5±0.1 Vdc	⊘CV841/VA-148 (J-1)

Location of CNs, CVs, Ts, TPs and RVs on VA-148 board (A side)



11-7

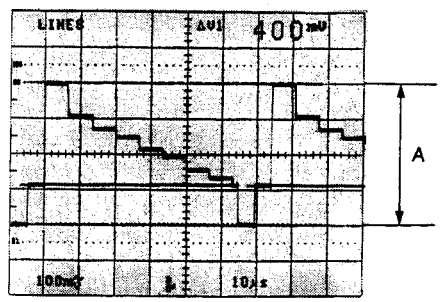
Location of CNs, CVs, Ts, TPs and RVs on VA-148 board (A side)



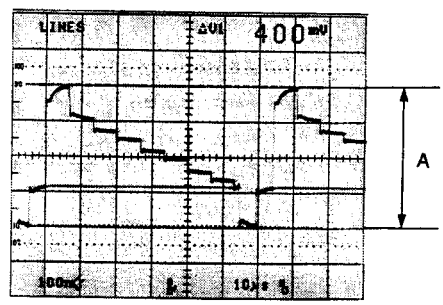
11-7
11-7

11-2. VO-47 BOARD ADJUSTMENT

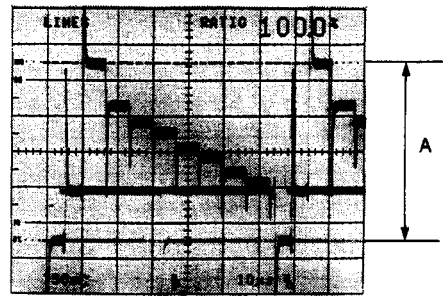
11-2-1. SUB EMPHASIS INPUT LEVEL ADJUSTMENT

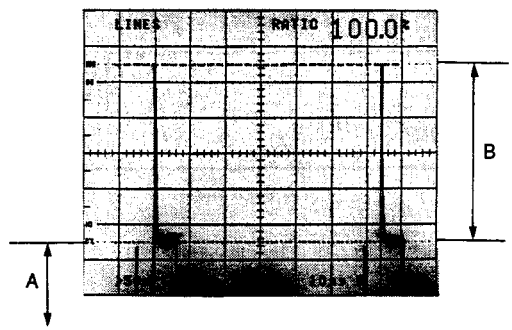
Machine condition for adjustment	Specifications	Adjustments
· S VIDEO IN : 75% color bars signal · VIDEO IN SELECT switch : S VIDEO · Insert a S-VHS blank tape. · REC mode (While pressing the REC button, press the PLAY button.)	TP201/VO-47 (M-2)  A=400±10 mV p-p	◐RV101/VO-47 (K-1)

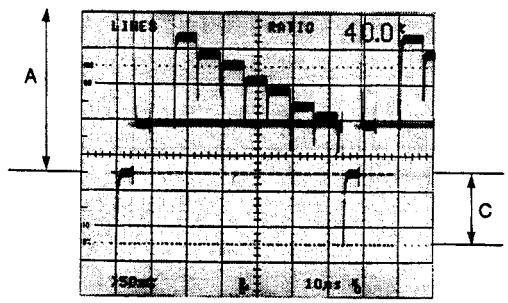
11-2-2. S-VHS REC Y LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· S VIDEO IN : 75% color bars signal · Insert a S-VHS blank tape. · REC mode (While pressing the REC button, press the PLAY button.)	TP211/VO-47 (M-2)  A=400±10 mV p-p	◐RV201/VO-47 (L-2)

11-2-3. N-VHS WHITE/DARK CLIP ADJUSTMENT

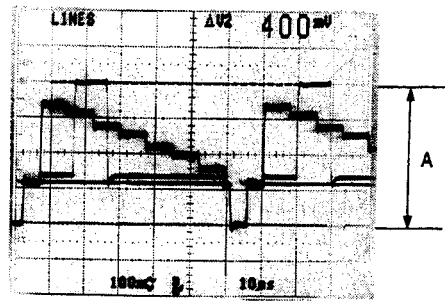
<table>
<tr><th>Machine condition for adjustment</th><th>Specifications</th><th>Adjustments</th></tr>
<tr><td rowspan="2">· S VIDEO IN : 75% color bars signal
· Insert a N-VHS blank tape.
· REC mode (While pressing the REC button, press the PLAY button.)</td><td>TP11/VO-47 (M-3)
 

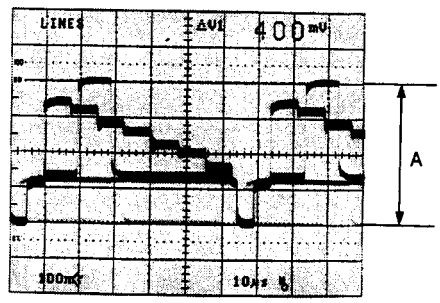
A=VIDEO signal + SYNC signal
(A is reference level.)
B/A=100±2%</td><td>⊘RV15/VO-47 (N-3)</td></tr>
<tr><td>TP11/VO-47 (M-3)
 

A=VIDEO signal + SYNC signal
(A is reference level.)
C/A=40±2%</td><td>⊘RV14/VO-47 (N-3)</td></tr>
</table>

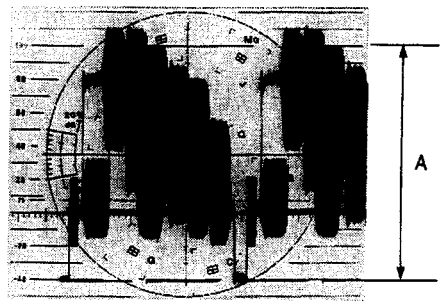
11-2-4. * N-VHS DEMOD Y LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· Play back the color bars signal (SP) portion of the alignment tape KRV-51N.	TP201/VO-47 (M-2)  A=400±10 mV p-p	⊘RV11/VO-47 (N-3)

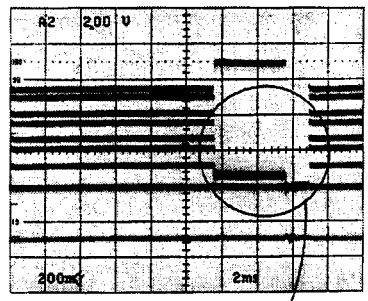
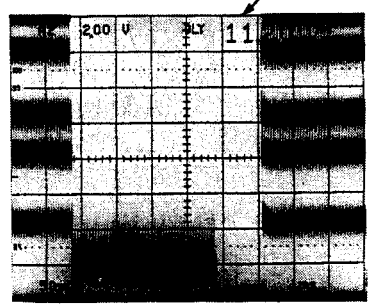
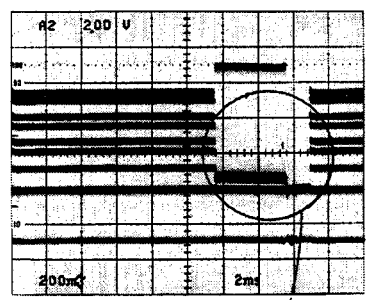
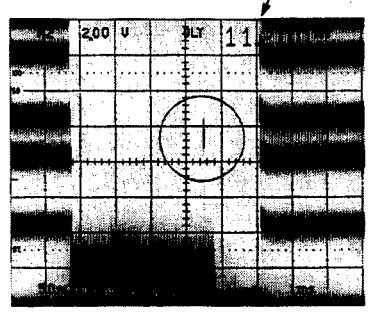
11-2-5. * S-VHS DEMOD Y LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· Play back the color bars signal (SP) portion of the alignment tape KRV-51HN.	TP211/VO-47 (M-2)  A=400±10 mV p-p	⊘RV12/VO-47 (N-3)

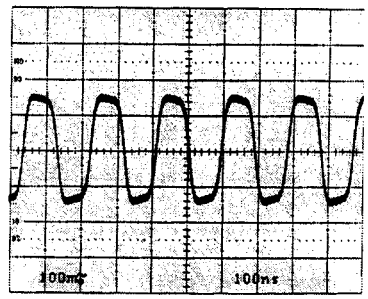
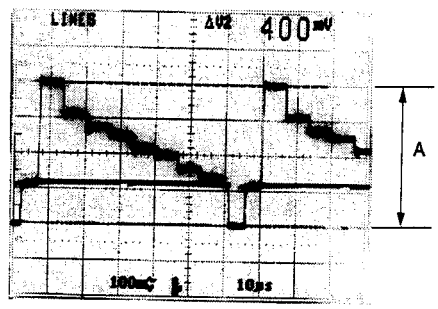
11-2-6. * S-VHS PB Y LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· Play back the color bars signal (SP) portion of the alignment tape KRV-51HN.	S VIDEO OUT 1 connector (terminated with 75 Ω) 	◐RV351/VO-47 (M-1)
Waveform monitor/Vector scope · WAVEFORM	A=1.000±0.028 V p-p (140±4 IRE)	
· After the adjustment, set the BYPASS/ LOCAL/REMOTE switch to BYPASS.	After the adjustment, set the BYPASS/LOCAL/REMOTE switch to LOCAL, and check that specification is satisfied.	

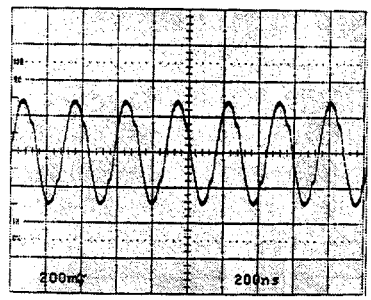
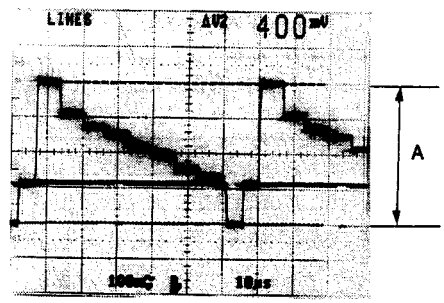
11-2-7. * DO COMPENSATION LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· Play back the color bars signal (SP) portion of the alignment tape KRV-51HN.	CN202-11B/VO-47<TP611B/VH-245> OK  Enlargement  OK NG  Enlargement  NG	●RV301/VO-47 (M-3) Trigger : CN201-7B/VO-47 <TP47B/VH-245>

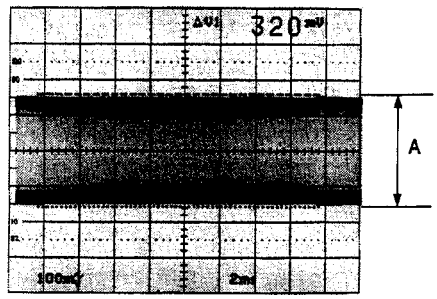
11-2-8. S-VHS SYNC CHIP CARRIER SET/DEVIATION ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· S VIDEO IN : No signal · Insert a S-VHS blank tape. · STOP (E-E) mode · Connect the frequency counter to test point (TP) through the oscilloscope.	Sync chip carrier set adjustment CN201-2B/VO-47＜TP42B/VH-245＞  5.42±0.05 MHz	◉RV16/VO-47 (N-2)
· S VIDEO IN : 75% color bars signal · Insert a S-VHS blank tape and perform the self-recording. (While pressing the REC button, press the PLAY button.) · Perform the self-playback. (measurement)	Deviation adjustment TP211/VO-47 (M-2)  A=400±10 mV p-p	◉RV17/VO-47 (N-3)

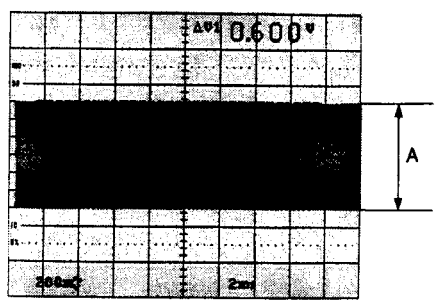
11-2-9. N-VHS SYNC CHIP CARRIER SET/DEVIATION ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· VIDEO IN : No signal · Insert a N-VHS blank tape. · STOP (E-E) mode · Connect the frequency counter to test point (TP) through the oscilloscope.	Sync chip carrier set adjustment CN201-2B/VO-47＜TP42B/VH-245＞  3.43±0.05 MHz	⊘RV18/VO-47 (N-2)
· VIDEO IN : 75% color bars signal · VIDEO IN SELECT switch : LINE · Insert a N-VHS blank tape and perform the self-recording. (While pressing the REC button, press the PLAY button.) · Perform the self-playback. (measurement) · After the adjustment, set the VIDEO IN SELECT switch to S VIDEO.	Deviation adjustment TP201/VO-47 (M-2)  A=400±10 mV p-p	⊘RV19/VO-47 (N-2)

11-2-10. S-VHS REC Y RF LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· S VIDEO IN : 50% FLAT FIELD · Insert a S-VHS blank tape. · REC mode (While pressing the REC button, press the PLAY button.)	CN201-2B/VO-47 < TP42B/VH-245 >  A=320±5 mV p-p	◐RV152/VO-47 (R-3)

11-2-11. N-VHS REC Y RF LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· S VIDEO IN : 50% FLAT FIELD · Insert a N-VHS blank tape. · REC mode (While pressing the REC button, press the PLAY button.)	CN201-2B/VO-47 < TP42B/VH-245 >  A=600±5 mV p-p	◐RV153/VO-47 (R-3)

11-2-12. * PB FSC OUTPUT ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· Play back the color bars signal (SP) portion of the alignment tape KRV-51HN. · Connect the frequency counter to test point (TP) through the oscilloscope.	CN201-13B/VO-47 < TP413B/VH-245 > 3.579545±0.000010 MHz	◐CV500/VO-47 (F-1)

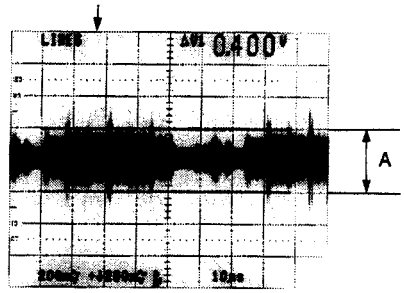
11-2-13. REC 320FH VCO ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· VIDEO IN : No signal · VIDEO IN SELECT switch : LINE · Insert a S-VHS blank tape. · REC mode (While pressing the REC button, press the PLAY button.) · Connect between TP404/VO-47(J-3) and E400/VO-47 (K-3) on the VO-47board with short clip. · Connect between CN201-7B/VO-47 <TP47B/VH-245>and GND on the VO-47 board with short clip. · Connect the frequency counter to test point (TP) through the oscilloscope. · After the adjustment, remove the short clip and set the VIDEO IN SELECT switch to S VIDEO.	TP402/VO-47 (K-3) 629±3 kHz	⊘RV401/VO-47 (J-3)

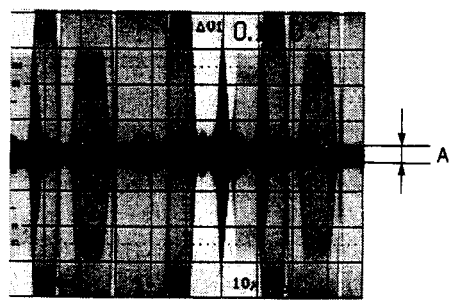
* PB 320FH VCO ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· VIDEO IN : No signal · STOP (E-E) mode · Connect between TP507/VO-47 (F-1) and E500/VO-47 (G-4) on the VO-47 board with short clip. · Connect between CN201-7B/VO-47 <TP47B/VH-245> and GND on the VO-47 board with short clip. · Connect between TP201/VO-47 (M-2) and CN201-19B/VO-47 <TP419B/VH-245> on the VO-47 board with short clip. · Connect the frequency counter to test point (TP) through the oscilloscope. · After the adjustment, remove the short clip.	TP508/VO-47 (F-1) 629±3 kHz	⊘RV505/VO-47 (G-3)

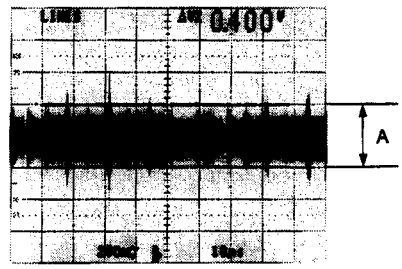
11-2-14. * CROSSTALK CANCELLER ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· Play back the color bars signal (SP) portion of the alignment tape KRV-51HN. Oscilloscope · CH-2 : INV · ADD	CH-1:TP700/VO-47 (D-1) CH-2:TP701/VO-47 (E-3) Green  Minimize the A (Green) level. (A≦400 mV)	●CH-1 : RV700/VO-47 (D-1) ●CH-2 : RV701/VO-47 (D-2)

11-2-15. CONVERTER BALANCE ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· Play back the color bars signal (SP) portion of the alignment tape KRV-51HN.	TP701/VO-47 (E-3)  Minimize the A level. (A≦100 mV)	●RV503/VO-47 (E-3)

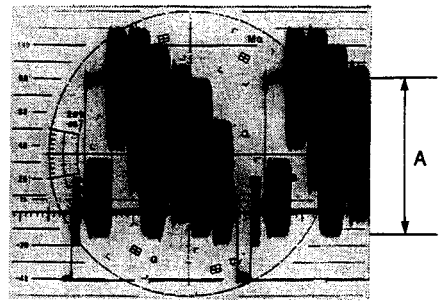
11-2-16. * ANALOG CNR ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· Play back the color bars signal (SP) portion of the alignment tape KRV-51HN.	TP901/VO-47 (C-2)  Minimize the A level. (A≦400 mV)	◐RV901/VO-47 (B-2) ◐RV902/VO-47 (C-2)

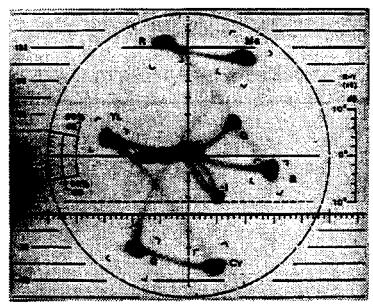
11-2-17. * CPI CARRIER BALANCE ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· Play back the color bars signal (SP) portion of the alignment tape KRV-51HN.	CN202-12B/VO-47＜TP612B/VH-245＞ Minimize the A level. (A≦40 mV)	◐RV951/VO-47 (A-2) ◐RV952/VO-47 (A-2)

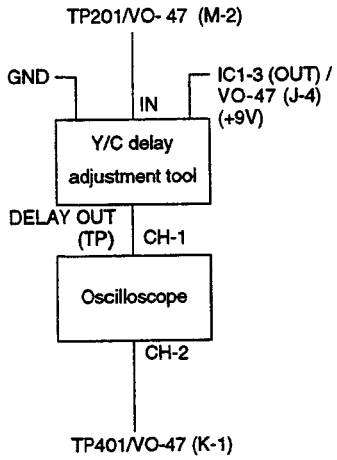
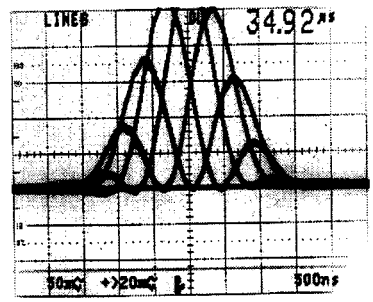
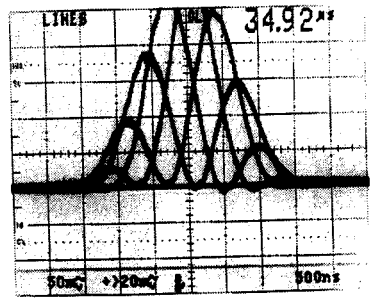
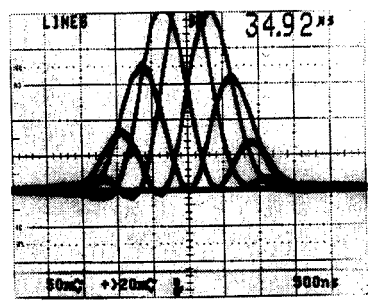
11-2-18. * PB CHROMA OUTPUT LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· Play back the color bars signal (SP) portion of the alignment tape KRV-51HN. Waveform monitor/Vector scope · WAVEFORM · After the adjustment, set the BYPASS/LOCAL/REMOTE switch to BYPASS.	VIDEO OUT connector (terminated with 75 Ω)  A=0.628±0.028 V p-p (88±4 IRE) (A=Red level) After the adjustment, set the BYPASS/ LOCAL/ REMOTE switch to LOCAL, and check that specification is satisfied.	⊘RV953/VO-47 (B-1)

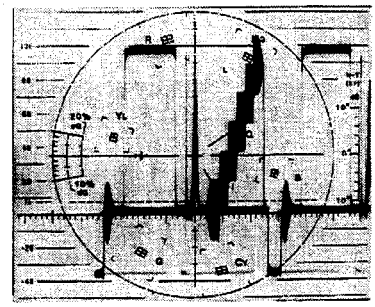
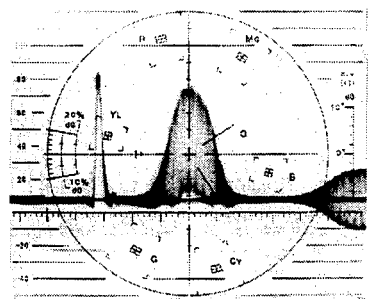
11-2-19. * PB CHROMA PHASE ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· Play back the color bars signal (SP) portion of the alignment tape KRV-51HN. Waveform monitor/Vector scope · VECTOR · After the adjustment, set the BYPASS/LOCAL/REMOTE switch to BYPASS.	VIDEO OUT connector (terminated with 75 Ω) The luminous spot of red shall be on the center line of ⊞ mark.  After the adjustment, set the BYPASS/ LOCAL/ REMOTE switch to LOCAL, and check that specification is satisfied. When the specification is not satisfied, turn ⊘RV402/TBC-30 (K-1).	⊘RV954/VO-47 (B-2)

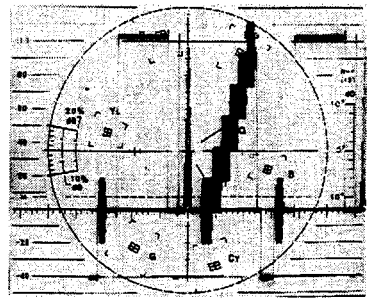
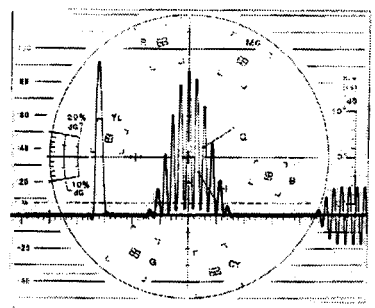
11-2-20. REC Y/C DELAY ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· S VIDEO IN : Pulse & bar signal · Insert a S-VHS blank tape. · REC mode (While pressing the REC button, press the PLAY button.) · Connect the oscilloscope to test points (TPs) as follows.  Oscilloscope · ADD · CH-2:VAR	CH-1:TP201/VO-47 (M-2) (through the Y/C delay adjustment tool) CH-2:TP401/VO-47 (K-1) OK  NG  NG  Flatten the bottom side portion (envelope) of modulation pulse.	⊘RV403/VO-47 (J-1)

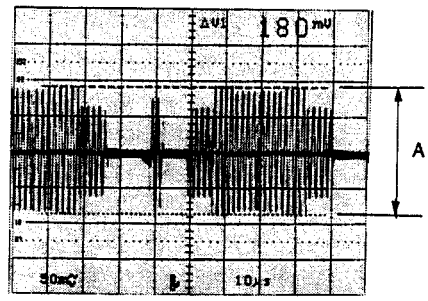
11-2-21. * PB Y/C DELAY ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· S VIDEO IN : NTC-7 COMPST signal · Insert a S-VHS blank tape and perform the self-recording. (While pressing the REC button, press the PLAY button.) · Perform the self-playback. (measurement) Waveform monitor/Vector scope · WAVEFORM	VIDEO OUT connector (terminated with 75 Ω)   Flatten the bottom side portion (envelope) of modulation pulse.	●CT500/VO-47 (G-1)

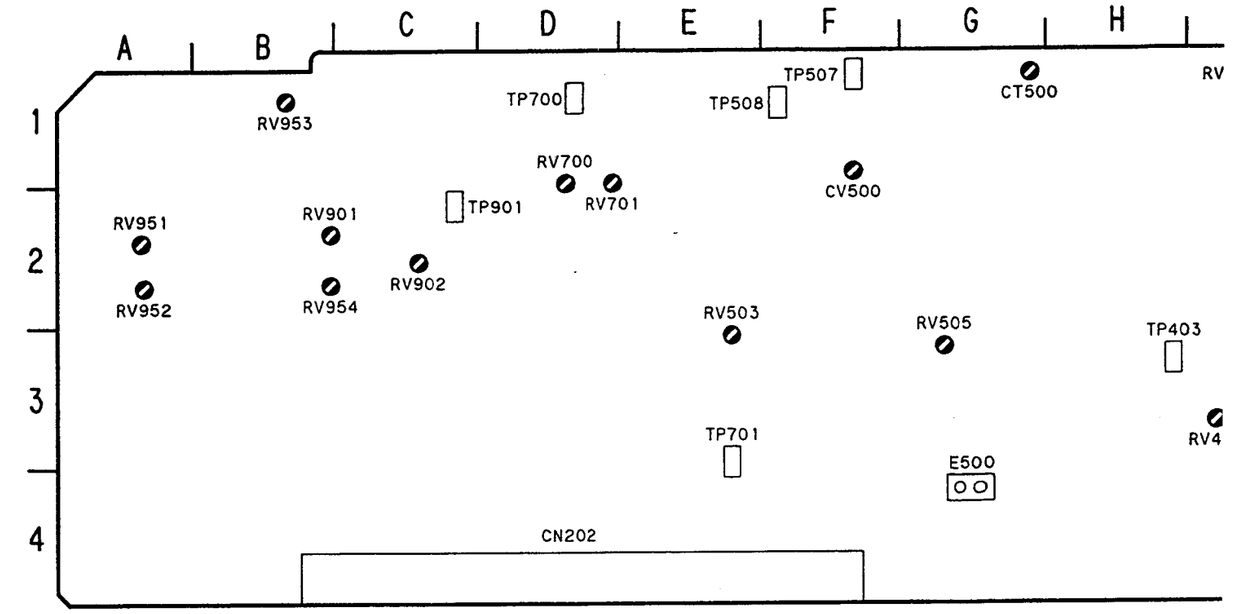
11-2-22. TBC ON Y/C DELAY ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· S VIDEO IN : NTC-7 COMPST signal · BYPASS/LOCAL/REMOTE switch : LOCAL · Insert a S-VHS blank tape and perform the self-recording. (While pressing the REC button, press the PLAY button.) · Perform the self-playback. (measurement) Waveform monitor/Vector scope · WAVEFORM · After the adjustment, set the BYPASS/LOCAL/REMOTE switch to BYPASS.	VIDEO OUT connector (terminated with 75 Ω)   Flatten the bottom side portion (envelope) of modulation pulse.	S301/KY-303 (Q-4) (YC DELAY switch)

11-2-23. S-VHS CHROMA REC CURRENT ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· S VIDEO IN : 75% color bars signal · Insert a S-VHS blank tape. · REC mode (While pressing the REC button, press the PLAY button.)	TP12/VO-47 (R-4)  A=180±10 mV p-p	◐RV404/VO-47 (J-1)

Location of CNs, Es, RVs and TPs on VO-47 board (A side)



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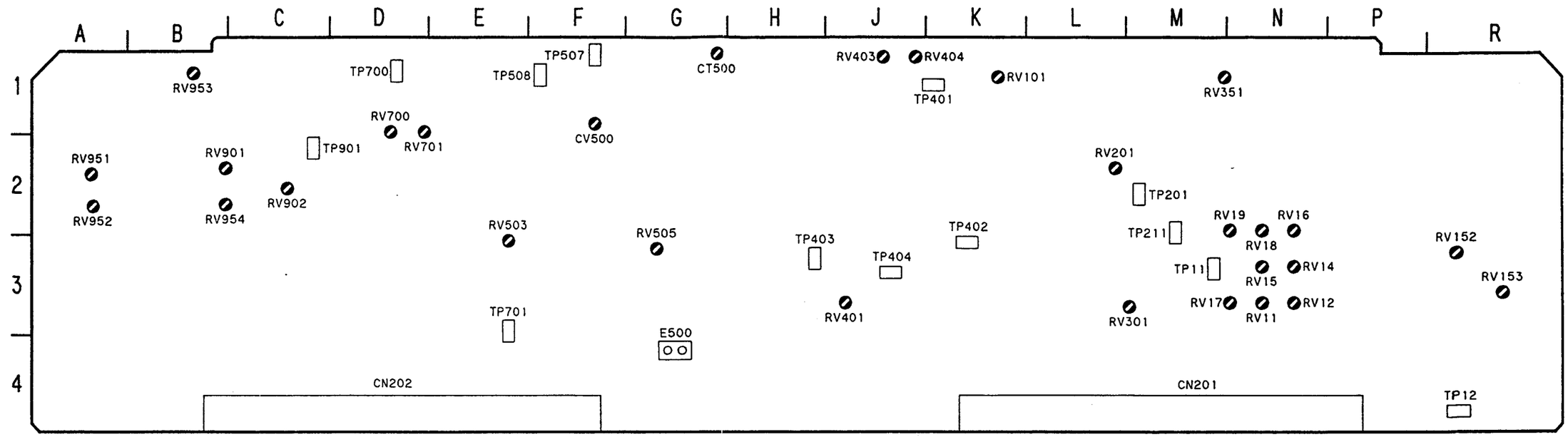
Location of CNs, Es, RVs and TPs on VO-47 board (A side)



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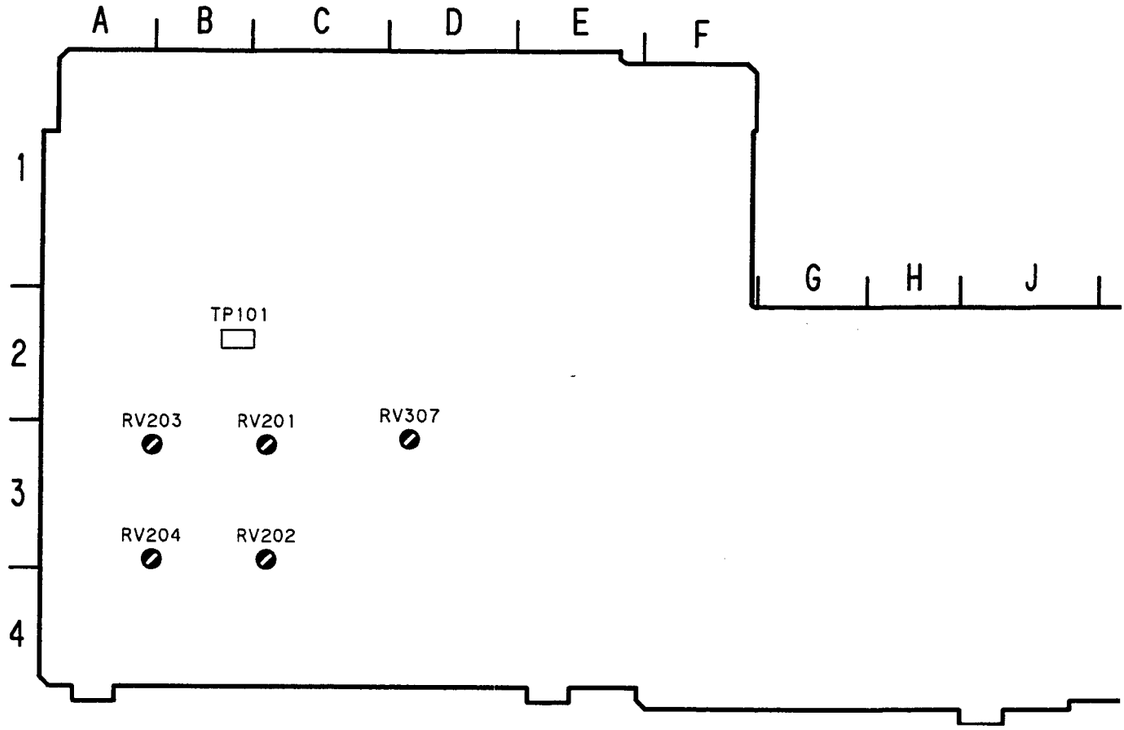
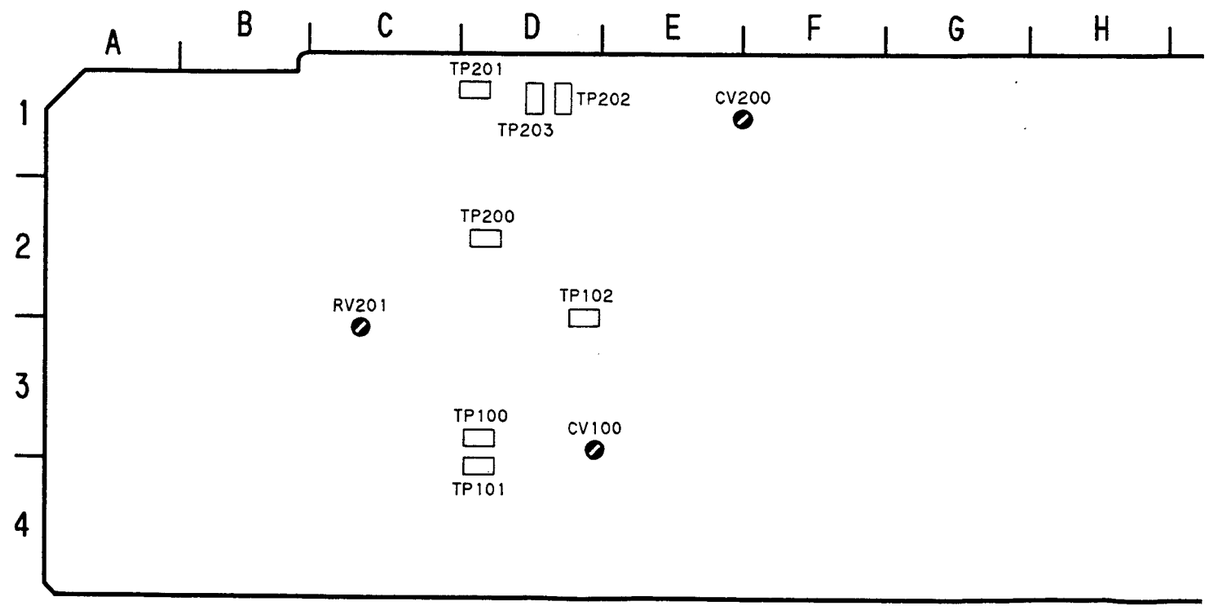
Location of RVs, S and TP on KY-303 board (A side)



Location of CVs, RVs and TPs on TBC-30 board (A side)



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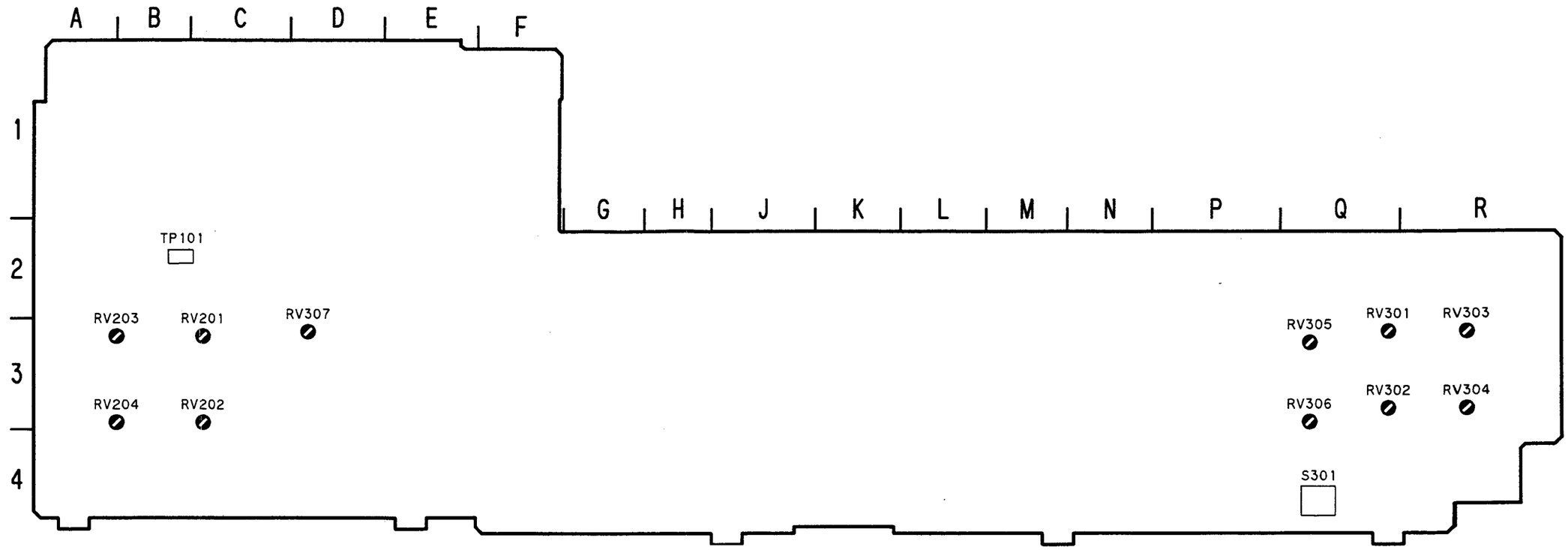
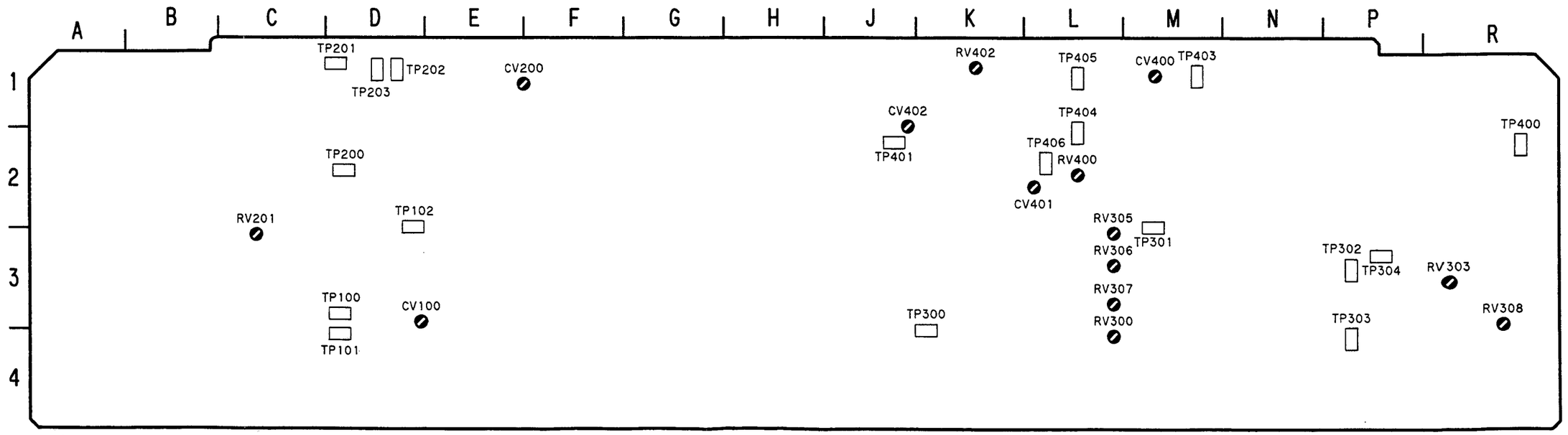
Location of RVs, S and TP on KY-303 board (A side)



Location of CVs, RVs and TPs on TBC-30 board (A side)



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11-3. TBC-30 BOARD ADJUSTMENT

[Setting of switches and volumes]

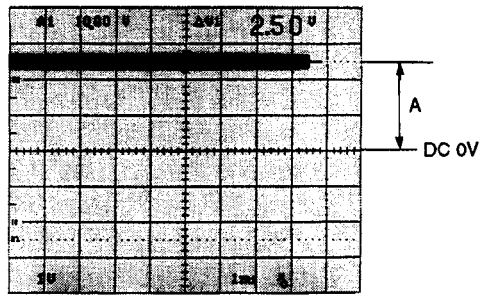
FRONT PANEL

- REMOTE/LOCAL switch ... LOCAL
- VIDEO IN SELECT switch ... S VIDEO
- CTL/TC/U-BIT switch ... CTL
- LTC/AUTO/VITC switch ... LTC
- EXT/INT switch ... INT
- BYPASS/LOCAL/REMOTE switch ... LOCAL
- YC DELAY switch ... 4
- TRACKING control knob ... Center Click
- SYNC PHASE screw ... Fully Counterclockwise
- SC PHASE screw ... Fully Counterclockwise
- VIDEO control knob ... Center Click
- CHROMA control knob ... Center Click
- SET UP control knob ... Center Click
- HUE control knob ... Center Click

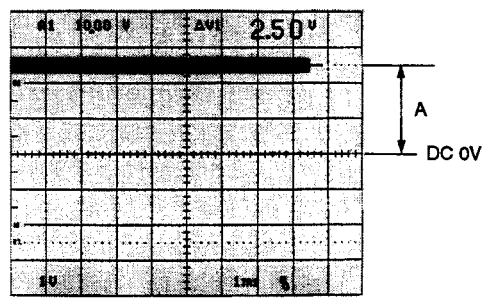
REAR PANEL

- TERMINATED with 75Ω switch (VIDEO IN) ... ON
- TERMINATED with 75Ω switch (REF VIDEO IN) ... ON

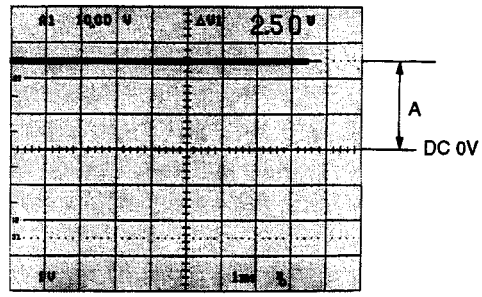
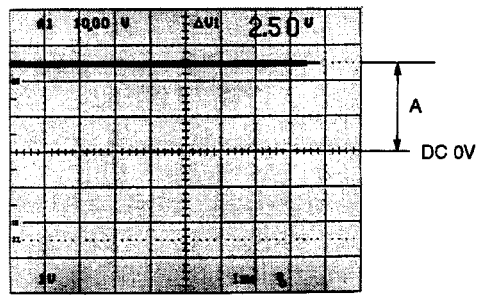
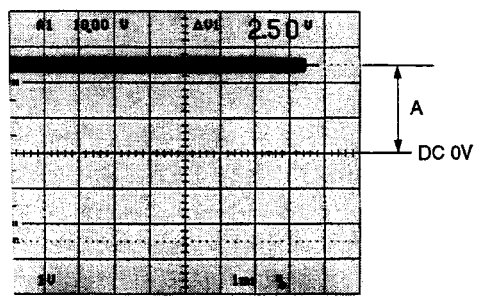
11-3-1. * AFC WRITE CLOCK ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· REF VIDEO IN : 75% color bars signal · PB mode	TP101/TBC-30 (D-4)  A=2.5±0.2 Vdc	⊘CV100/TBC-30 (D-3)

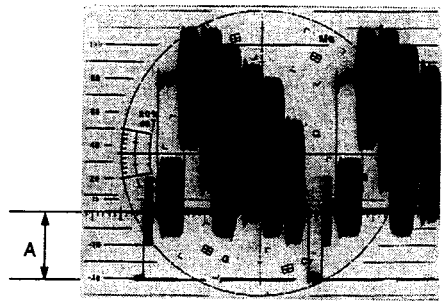
11-3-2. * APC WRITE CLOCK ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· REF VIDEO IN : 75% color bars signal · PB mode	TP203/TBC-30 (D-1)  A=2.5±0.1 Vdc	⊘CV200/TBC-30 (F-1)

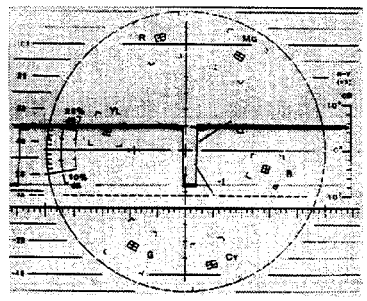
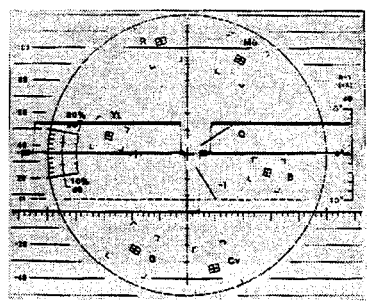
11-3-3. * READ CLOCK ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· REF VIDEO IN : 75% color bars signal	TP403/TBC-30 (M-1)  A=2.5±0.1 Vdc	⊘CV400/TBC-30 (M-1)
	TP404/TBC-30 (L-1)  A=2.5±0.1 Vdc When the waveform sways turn SC PHASE screw on the front panel.	⊘CV401/TBC-30 (L-2)
	TP401/TBC-30 (J-2)  A=2.5±0.1 Vdc	⊘CV402/TBC-30 (J-1)
· REF VIDEO IN : 75% color bars signal · Connect the frequency counter to test point(TP) throught the oscilloscope.	TP405/TBC-30 (L-1) 14.31818±0.00002 MHz	⊘RV400/TBC-30 (L-2)

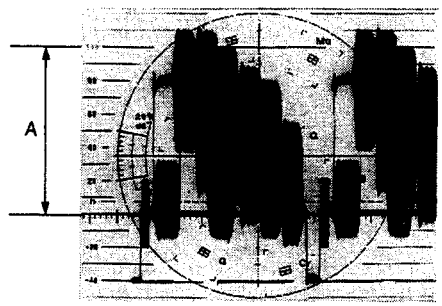
11-3-4. * SYNC LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· Play back the color bars signal (SP) portion of the alignment tape KRV-51HN. Waveform monitor/Vector scope · WAVEFORM · 2H	VIDEO OUT connector (terminated with 75 Ω)  A=0.286±0.014V (40±2 IRE)	●RV307/TBC-30 (L-3)

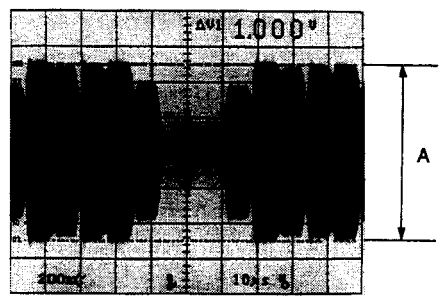
11-3-5. * SET UP LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· REF VIDEO IN : 75% color bars signal · VIDEO IN SELECT switch : BLACK · Insert a N-VHS blank tape and perform the self-recording. (While pressing the REC button, press the PLAY button.) · Perform the self-playback. (measurement) Waveform monitor/Vector scope · WAVEFORM · 2H · UNCAL	VIDEO OUT connector (terminated with 75 Ω) OK  NG 	●RV308/TBC-30 (R-3)

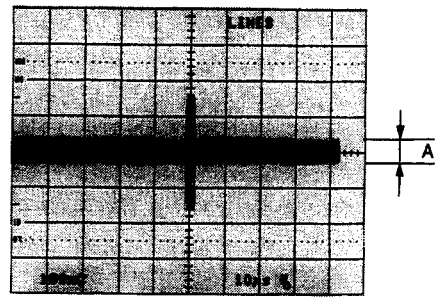
11-3-6. * TBC Y LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· Play back the color bars signal (SP) portion of the alignment tape KRV-51HN. Waveform monitor/Vector scope · WAVEFORM · 2H	VIDEO OUT connector (terminated with 75 Ω)  A=0.714±0.014 V (100±2 IRE)	◐RV300/TBC-30 (L-4)

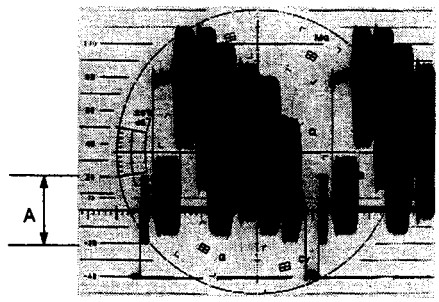
11-3-7. * INPUT CHROMA LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· Play back the color bars signal (SP) portion of the alignment tape KRV-51HN.	TP200/TBC-30 (D-2)  A=1.00±0.05 V p-p	◐RV201/TBC-30 (C-3)

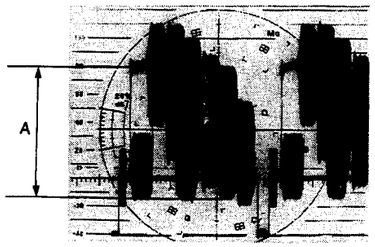
11-3-8. * MODULATOR BALANCE ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· REF VIDEO IN : No signal	TP301/TBC-30 (M-2)  Minimize the A level. (A≦10 mV)	⊘RV303/TBC-30 (R-3)

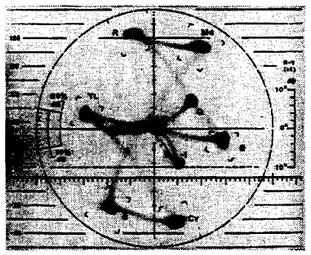
11-3-9. * BURST LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· Play back the color bars signal (SP) portion of the alignment tape KRV-51HN. Waveform monitor/Vector scope · WAVEFORM	VIDEO OUT connector (terminated with 75 Ω)  A=0.286±0.014 V (40±2 IRE)	⊘RV305/TBC-30 (L-3)

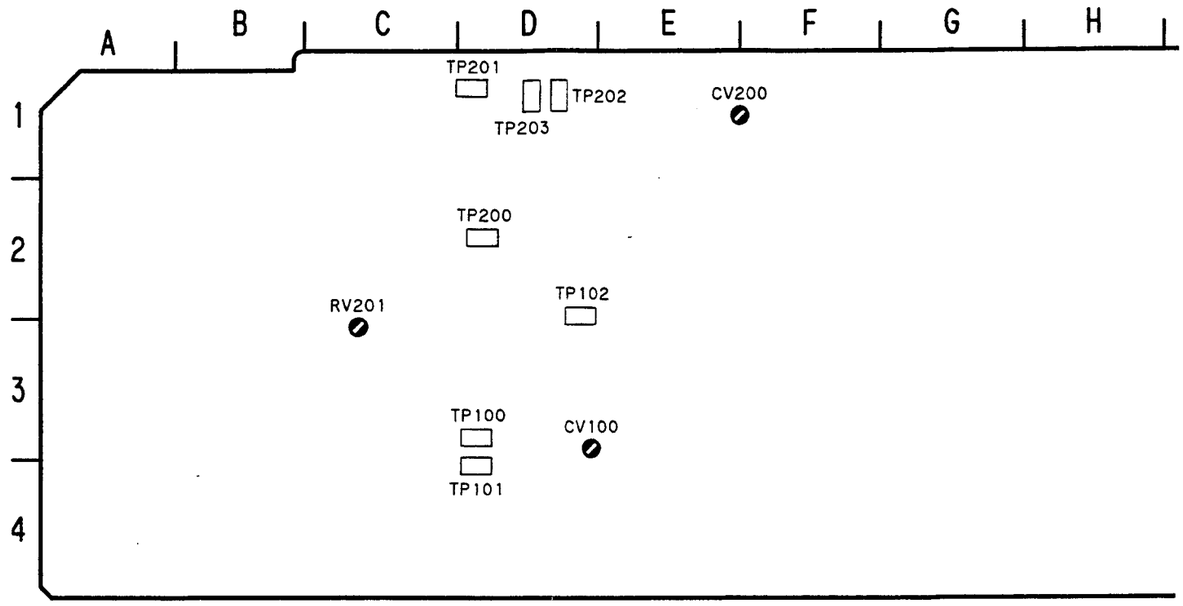
11-3-10. * TBC CHROMA OUTPUT LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· Play back the color bars signal (SP) portion of the alignment tape KRV-51HN. Waveform monitor/Vector scope · WAVEFORM	VIDEO OUT connector (terminated with 75 Ω)  A=0.628±0.014 V (88±2 IRE) (A=Red level)	⊘RV306/TBC-30 (L-3)

11-3-11. * HUE ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· Play back the color bars signal (SP) portion of the alignment tape KRV-51HN. Waveform monitor/Vector scope · WAVEFORM	VIDEO OUT connector (terminated with 75 Ω)  · Set the luminous spot of burst at regular position of vectorscope. · The luminous spot of red shall be within the frame of R ⊞ mark.	⊘RV402/TBC-30 (K-1)

Location of CVs, RVs and TPs on TBC-30 board (A side)



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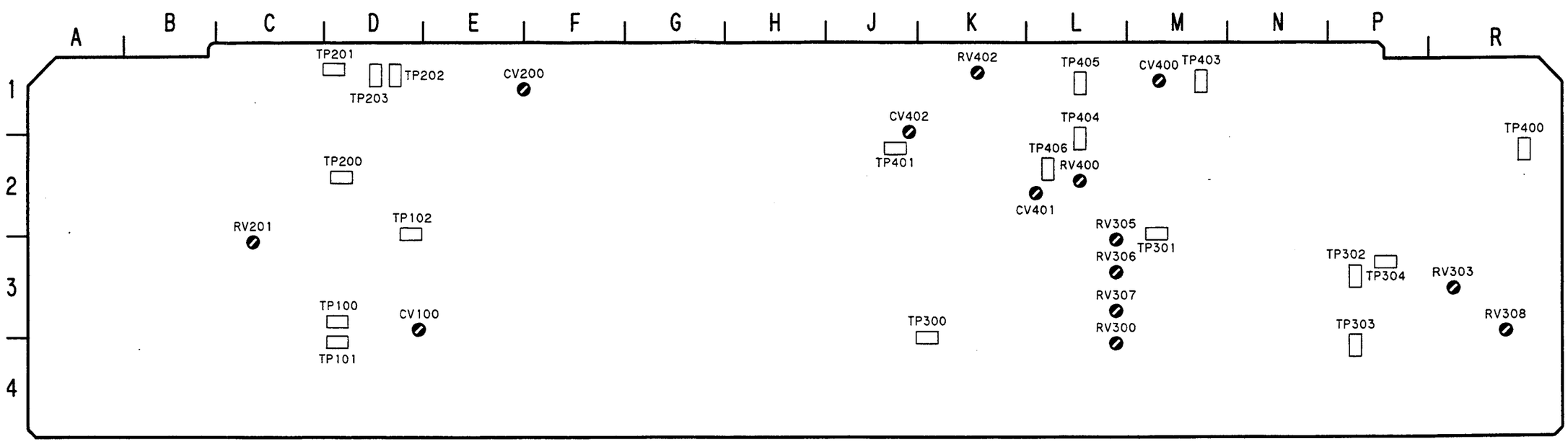
Location of CVs, RVs and TPs on TBC-30 board (A side)



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SECTION 12
ELECTRICAL ALIGNMENT AFTER REPLACEMENT BOARDS

As to SVP-5600, perform the adjustments marked with ◎.
As to SVO-5800, perform all adjustments as shown below.

12-1. ADJUSTMENT FOR VA-148 BOARD REPLACEMENT

10-2. NORMAL(LAU) REC Reference Level Setting
◎10-6. LAU PB Level Adjustment
◎10-7. LAU PB Frequency Response Adjustment
10-9. LAU VHS Bias Current Adjustment
10-10. LAU S-VHS Bias Current Adjustment
10-11. LAU REC Level Adjustment

12-2. ADJUSTMENT FOR VO-47 BOARD REPLACEMENT

◎11-2-6. S-VHS PB Y Level Adjustment
◎11-2-18. PB Chroma Output Level Adjustment
◎11-2-21. PB Y/C Delay Adjustment
11-2-22. TBC ON Y/C Delay Adjustment